



**TETRA TECH**  
ARCHITECTS & ENGINEERS

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Ithaca, New York  
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Albany, New York

## VOLUME 1

### WALLKILL CENTRAL SCHOOL DISTRICT

WALLKILL, NEW YORK

PROJECT NO. 17597-22001

RECONSTRUCTION TO  
WALLKILL SENIOR HIGH SCHOOL  
JOHN G. BORDEN MIDDLE SCHOOL  
OSTRANDER ELEMENTARY SCHOOL  
PLATTEKILL ELEMENTARY SCHOOL  
LEPTONDALE ELEMENTARY SCHOOL

NOVEMBER 4, 2022

The engineer that has signed this document certifies that to the best of their knowledge, information and belief, the asbestos plans and specifications are in accordance with applicable requirements of the New York State Uniform Fire Prevention and Building Code, Construction Standards of the Commissioner of Education, New York State Department of Labor Part 56 of Title 12, and the United States Environmental Protection Agency Hazard Emergency Response ACT Regulations. Anthony Meluso is accredited to the EPA and New York State under AHERA Regulations as an Asbestos Project Designer (Asbestos Handling Certificate Number 94-03914).

To the best of the Architect's knowledge, information and belief, the design of this project conforms to all applicable provisions of the New York State Uniform Fire Prevention and Building Code, the New York State Energy Conservation Construction Code, and the building standards of the New York State Education Department.

SET NO. \_\_\_\_\_

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**SECTION TITLE**

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- 01 31 00 Project Management and Coordination (with two attachments)



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**SECTION TITLE**

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- 05 50 00 Metal Fabrications
- 05 52 13 Tube Railings (Stainless Steel)

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- 07 71 00 Roof Specialties
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**SECTION TITLE**

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G100	Symbols and Abbreviations

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AG350	Code Compliance Review
AG351	First Floor - Scope of Work and Rescue Window Locations
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AV002	Existing Land Survey
AV003	Existing Land Survey
AV004	Existing Land Survey
AV005	Existing Land Survey

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AC120	Site Layout Plan - Area A
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AC133	Site Grading Plan - Area D
AC140	Site Utility Plan - Area A
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AA051 Basement and First Floor Key Plans  
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## STRUCTURAL

AS130 Loading Dock Foundation Plan - Area B, Notes, Schedules and Details

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AM051 First Floor Key and Partial Plans  
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AE051 Basement and First Floor Key Plan  
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## PLUMBING

AP001 Partial Plumbing Site Plan  
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## **JOHN G. BORDEN MIDDLE SCHOOL**

### CODE COMPLIANCE

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- BG351 First Floor - Scope of Work and Rescue Window Locations
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- BHAZ100 First Floor Abatement Plan

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- BA051 Basement and First Floor Key Plans
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- BA101 First Floor Demolition Plan - Area A
- BA102 First Floor Demolition Plan - Area B
- BA103 Second Floor Demolition Plan - Areas A and B
- BA104 Third Floor Demolition Plan - Areas A and B
- BA131 First Floor Plan - Area A
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- BA133 Second Floor Plan - Areas A and B
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- BA400 Enlarged Plans and Details
- BA600 Door Schedule, Door and Window Types, and Details
- BA900 Interior Elevations, Casework Details and Signage
- BA920 Auditorium Details
- BA921 Auditorium Seating Layout

### MECHANICAL

- BM051 First Floor Key and Partial Plans
- BM500 Details, Schedules and Controls

### ELECTRICAL

- BE051 First Floor Key Plan
- BE400 Enlarged Partial First Floor Plans - Area A
- BE500 Details

## **OSTRANDER ELEMENTARY SCHOOL**

### CODE COMPLIANCE

- CG350 Code Compliance Review
- CG351 First Floor - Scope of Work and Rescue Window Locations

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- CHAZ101 First Floor Abatement Plan

### SURVEY / MAPPING

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- CC100 Site Demolition Plan
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## CIVIL (CONT'D)

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CC500	Site Details
CC501	Site Detail

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CA052	Roof Plan
CA104	First Floor Demolition Plan - Area A
CA105	First Floor Demolition Plan - Area B
CA106	First Floor Demolition Plan - Area C
CA107	First Floor Demolition Plan - Area D
CA134	First Floor Plan - Area A
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CA137	First Floor Plan - Area D
CA160	First Floor Reflected Ceiling Plan - Area A
CA161	First Floor Reflected Ceiling Plan - Area B
CA162	First Floor Reflected Ceiling Plan - Area C
CA163	First Floor Reflected Ceiling Plan - Area D
CA400	Enlarged Plans and Details
CA600	Door Schedule, Door and Window Types, and Details
CA900	Interior Elevations, Details and Signage

## STRUCTURAL

CS130	Partial Roof Framing Plan - Areas A, B Notes, Schedules, and Details
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## MECHANICAL

CM051	First Floor Key Plan
CM101	Partial First Floor Plans - Area A
CM102	Partial First Floor Plans - Area B
CM103	Partial First Floor Plans - Area D
CM104	Roof Demolition Plan
CM105	Roof Plan
CM500	Details
CM600	Schedules
CM700	Controls

## ELECTRICAL

CE051	First Floor Key Plan
CE100	Partial First Floor Demolition Plan - Area A
CE101	Partial First Floor Demolition Plan - Area B
CE102	Partial First Floor Demolition - Area C
CE103	Roof Power, Communications and Fire Alarm Demolition Plan
CE130	Partial First Floor Lighting Plans - Area A
CE131	Partial First Floor Lighting Plan Area B
CE132	Partial First Floor Lighting Plan Area C
CE161	First Floor Power, Communications and Fire Alarm Plans
CE162	Partial First Floor Power, Communications and Fire Alarm Plans - Area B
CE163	Roof Power, Communications and Fire Alarm Plan
CE400	Enlarged Plan
CE500	Details



## ELECTRICAL (CONT'D)

CE501 Details  
CE600 Schedules

## PLUMBING

CP050 Partial Roof Plan - Area A and Details

## **COMMON**

## ARCHITECTURAL

ZA750 Roof Details

## **VOLUME 2 OF 2**

## **PLATTEKILL ELEMENTARY SCHOOL**

## CODE COMPLIANCE

DG350 Code Compliance Review  
DG351 First Floor - Scope of Work and Rescue Window Locations

## HAZARDOUS MATERIALS

DHAZ102 Interior Abatement Plan  
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DA051 Basement and First Floor Key Plans  
DA052 Roof Plan  
DA100 Basement Floor Demolition Plan  
DA101 First Floor Demolition Plan - Area A  
DA102 First Floor Demolition Plan - Area B  
DA103 First Floor Demolition Plan - Area C  
DA130 Basement Floor Plan  
DA131 First Floor Plan - Area A  
DA132 First Floor Plan - Area B  
DA133 First Floor Plan - Area C  
DA161 First Floor Reflected Ceiling Plan - Partial Areas A and B  
DA400 Enlarged Plans / Interior Elevations  
DA600 Door Schedule, Door and Window Types, and Details  
DA900 Interior Elevations, Details and Signage

## STRUCTURAL

DS130 Partial Roof Framing Plan Areas A & B  
DS500 Typical and Framing Details

## MECHANICAL

DM051 First Floor Key Plan  
DM052 Roof Key Plan and Partial Area A Plan  
DM101 Partial First Floor Plans Areas A and B  
DM102 Partial First Floor Plans - Area B  
DM103 Partial Roof Plans - Area B  
DM500 Details



## MECHANICAL (CONT'D)

DM600 Schedules  
DM700 Control Sequences

## ELECTRICAL

DE050 First Floor Key Plan  
DE101 Partial First Floor Demolition Plans - Areas A and B  
DE102 Roof Demolition Plan  
DE130 Partial First Floor Lighting Plan - Areas A and B  
DE160 Partial Basement and First Floor Power, Communications and Fire Alarm Plan  
DE161 Roof Power, Communications and Fire Alarm Plan  
DE500 Details  
DE501 Details  
DE600 Schedules

## PLUMBING

DP130 Enlarged Basement Plan, Schedule and Details

## **LEPTONDALE ELEMENTARY SCHOOL**

## CODE COMPLIANCE

EG350 Code Compliance Review  
EG351 First Floor - Scope of Work and Rescue Window Locations  
EG352 Second Floor - Rescue Window Locations

## HAZARDOUS MATERIALS

EHAZ105 Partial Roof Abatement Plan - Area C

## ARCHITECTURAL

EA051 First Floor Key Plan  
EA052 Second Floor Key Plan  
EA053 Roof Plan  
EA101 First Floor Demolition Plan - Area A  
EA102 First Floor Demolition Plan - Area B  
EA104 Second Floor Demolition Plan - Partial Area B and Area C  
EA131 First Floor Plan - Area A  
EA132 First Floor Plan - Area B  
EA134 Second Floor Plan - Partial Area B and Area C  
EA161 First Floor Reflected Ceiling Plan  
EA162 Second Floor Reflected Ceiling Plan  
EA400 Enlarged Plans / Interior Elevations  
EA600 Door Schedule, Door and Window Types, and Details  
EA900 Interior Elevation, Details and Signage

## STRUCTURAL

ES130 Partial Roof Framing Plan - Areas B and C, Notes and Schedules  
ES500 Typical Details

## MECHANICAL

EM051 First and Second Floor Key Plans  
EM101 Partial First Floor Plans - Areas A and B  
EM102 Partial Second Floor Plans - Area C



## MECHANICAL (CONT'D)

EM103	Partial Roof Demolition Plans - Areas A, B and C
EM104	Partial Roof Plans - Areas A, B and C
EM500	Details
EM600	Schedules and Controls
EM700	Controls

## ELECTRICAL

EE051	Key Plans
EE101	Partial First Floor and Demolition Plans Areas B & C
EE102	Partial Second Floor Demolition Plans - Areas B and C
EE103	Roof Demolition Plan
EE130	Partial First Floor Lighting Plan Areas A and B
EE131	Partial Second Floor Lighting Plan - Areas B and C
EE160	Partial First Floor Power, Communications and Fire Alarm Plans Areas A and B
EE161	Partial Second Floor Power, Communications and Fire Alarm Plan - Area B and C
EE163	Roof Power Plan
EE500	Details and Diagrams
EE600	Schedules

## **COMMON**

### ARCHITECTURAL

ZA750	Roof Details
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All drawings dated November 4, 2022.



**NOTICE TO BIDDERS**

NOTICE IS HEREBY GIVEN, that sealed Bids, in duplicate, are sought and requested by the Board of Education, Wallkill Central School District Board of Education (hereinafter called "Owner"), for the Reconstruction to Wallkill Senior High School, John G. Borden Middle School, Leptondale Elementary School, Ostrander Elementary School, and Plattekill Elementary School.

Separate Bids are requested for the following Contracts:

General Work – GC-1  
Plumbing Work – PC-1  
Mechanical Work – HVAC-1  
Electrical Work – EC-1  
Site Work – SC-1  
Site Work – SC-2  
Site Work – SC-3

in accordance with the Drawings, Project Manual (including Conditions of the Contract and Specifications), and other Bidding and Contract Documents prepared by:

Tetra Tech Engineers, Architects & Landscape Architects, P.C. d/b/a  
Tetra Tech Architects & Engineers  
10 Brown Road  
Ithaca, New York 14850

A pre-bid conference for potential Bidders and other interested parties will be held on Front Auditorium of the Wallkill Senior High School, 90 Robinson Drive, Wallkill, New York 12589:

General / Plumbing / Mechanical / Electrical / Site – 3:00 PM on Thursday, February 23, 2023.

Sealed Bids will be received by the Owner until 2:30 PM on Tuesday, March 14, 2023, in the Wallkill District Administration Building, 1500 State Route 208, Wallkill, New York 12589. Sealed Bids will be opened and publicly read aloud at 3:30 PM on Tuesday, March 14, 2023, at the Wallkill Senior High School Library, 90 Robinson Drive, Wallkill, New York 12589.

For the convenience of potential Bidders and other interested parties, the Bidding Documents may be examined at the following locations:

Reed Construction Data, Document Processing Center, 30 Technology Parkway South, Suite 500,  
Norcross, GA 30092-2912  
Eastern Contractors Association, Inc., 6 Airline Drive, Colonie, NY 12205  
McGraw Hill Construction/Dodge, c/o Dataflow, 71 Fuller Road, Albany, NY 12205  
Wallkill Central School District, 1500 State Route 208, Wallkill, New York 12589  
Tetra Tech Architects & Engineers, 10 Brown Road, Ithaca New York 14850

Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online as a download at [www.tetratchaeprojectplanroom.com](http://www.tetratchaeprojectplanroom.com) 'public projects' for a non-refundable fee of \$49.00 (Forty Nine Dollars).



Complete hard copy sets of Bidding Documents, drawings and specifications, may be obtained online at [www.tetratetchaeprojectplanroom.com](http://www.tetratetchaeprojectplanroom.com) 'public projects'. Checks shall be made payable to Wallkill Central School District in the sum of \$100.00 (One Hundred Dollars) for each set of documents. A scanned copy of the deposit check can be emailed to [projects@revplans.com](mailto:projects@revplans.com). Once the scanned copy of the executed deposit check is received, Bidding Documents will be shipped. Mail checks to Lohrius Blueprint, 226 Newtown Road, Plainview, New York 11803. Plan deposit is refundable in accordance with the terms in the Instructions to Bidders. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs (either by providing FedEx/UPS account number or being charged a flat rate by the printer).

Please note REV [www.tetratetchaeprojectplanroom.com](http://www.tetratetchaeprojectplanroom.com) is the designated location and means for distributing and obtaining all bid package information, electronic or hard copy. Only those Contract Documents obtained in this manner will enable a prospective bidder to be identified as a registered plan holder. The Provider takes no responsibility for the completeness of Contract Documents obtained from other sources. Contract Documents obtained from other sources may not be accurate or may not contain addenda that may have been issued.

All bid addenda will be transmitted to registered plan holders, regardless of receiving electronic or hard copy Bid Documents, via email and will be available at [www.tetratetchaeprojectplanroom.com](http://www.tetratetchaeprojectplanroom.com). Registered plan holders who have paid for hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use, and coordinate directly with REV for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda.

As bid security, each Bid shall be accompanied by a certified check or Bid Bond made payable to the Owner, in accordance with the amounts and terms described in the Instructions to Bidders.

The Owner requires Bids comply with bidding requirements indicated in the Instructions to Bidders. The Owner may, at its discretion, waive informalities in Bids, but is not obligated to do so, nor does it represent that it will do so. The Owner also reserves the right to reject any and all Bids. The Owner will not waive informalities which would give one Bidder substantial advantage or benefit not enjoyed by all affected Bidders. Bids may not be withdrawn before 45 days following the Bid opening thereof, unless an error is claimed by the Bidder in accordance with the Instructions to Bidders.



## **INSTRUCTIONS TO BIDDERS**

### **ARTICLE 1**

#### **PROJECT AND BIDDING INFORMATION**

1. Project Identification: Reconstruction to Wallkill Senior High School, John G. Borden Middle School, Leptondale Elementary School, Ostrander Elementary School, and Plattekill Elementary School.
  - a. Project Location: Wallkill Central School District
2. Owner: Wallkill Central School District.
  - a. Address: 1500 Route 208, Wallkill, New York 12589.
3. Bid Opening: Bids will be received until the following Bid opening date and time, at the following location:
  - a. Bid Opening Date and Time: Tuesday, March 14, 2023 at 2:30 PM, local time.
  - b. Bid Opening Location: Wallkill District Administration Building, 1500 State Route 208, Wallkill, New York 12589. Sealed Bids will be opened and publicly read aloud at 3:30 PM on Tuesday, March 14, 2023, at the Wallkill Senior High School Library, 90 Robinson Drive, Wallkill, New York 12589.
4. Bidders are invited to submit Bids for the following Contracts:
  - a. General Work – GC-1
  - b. Plumbing Work – PC-1
  - c. Mechanical Work – HVAC-1
  - d. Electrical Work – EC-1
  - e. Site Work – SC-1
  - f. Site Work – SC-2
  - g. Site Work – SC-3
5. Access to the Project Site: Subject to Owner's prior approval of timing, Bidders will be permitted access to Project site on Monday through Friday, from 8:00AM until 4:30 PM, except legal holidays.
  - a. Contact Owner's representative designated below, prior to visiting Project site, to arrange access.
  - b. Owner's Representative:  
  
Primary Contact:  
  
Mr. Joe Barone, Construction Manager, Barone Construction Group, Inc., 23 New Paltz Road, Highland, New York 12528, Phone (845) 691-2244



Secondary Contact – only if primary is not available:

Mr. Brian Devincenzi, Assistant Superintendent for Support Services, 1500 State Route 208, Wallkill, New York, 12589, Phone (845) 895-7102.

6. Pre-Bid Conference: A pre-bid conference for potential Bidders and other interested parties will be held as follows:
  - a. Pre-Bid Conference Date and Time: Thursday, February 23, 2023 at 3:00 PM, local time.
  - b. Pre-Bid Conference Location: Front Auditorium of the Wallkill Senior High School, 90 Robinson Drive, Wallkill, New York 12589.
7. Agreement Form: The following will be used as the basis for the form of agreement between the Owner and the Contractor (Owner-Contractor Agreement):
  - a. Standard Form of Agreement Between Owner and Contractor, AIA Document A101.

## ARTICLE 2 DEFINITIONS

1. Definitions in the General Conditions of the Contract for Construction, AIA Document A232, or in other Contract Documents are applicable to the Bidding Documents.
  - a. “Addenda”: Written or graphic instruments issued by the Architect prior to execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections.
  - b. “Bid”: Complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.
    - 1) “Base Bid”: Sum stated in the Bid for which Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated for Alternates.
    - 2) “Alternates”: Amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
  - c. “Bidder”: Person or entity who submits a Bid.

## ARTICLE 3 BIDDING PROCEDURES

1. Bid Form: Complete the Bid Form provided, in duplicate, with all blank spaces for Base Bid and Alternates and Unit Prices legibly completed in ink, or typewritten, in both words and figures.
  - a. In the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.
  - b. Bid Forms without amounts expressed both in words and figures will not be accepted.



2. Bid Attachments: Complete and submit the following attachments with the Bid Form:
  - a. Attachment #1: Non-Collusive Bidding Certification.
  - b. Attachment #2: Certified Corporate Resolution.
  - c. Attachment #3: Iranian Energy Divestment Certification
  - d. Attachment #4: Certificate on Violations
3. Bid Security:
  - a. Submit, with the Bid Form, bid security in the amount of five percent of the Base Bid, in any of the following forms:
    - 1) Certified check, payable to the Owner; or
    - 2) Bid Bond, payable to the Owner, on Bid Bond, AIA Document A310, or standard bid bond form, duly executed by the Bidder as principal, with a surety company acceptable to the Owner.
      - a) Affix a certified and current copy of the power of attorney for the attorney-in-fact who executes the required bond on behalf of the surety.
  - b. Within three days following the Bid opening, bid security will be returned to all Bidders, except the three apparent lowest Bidders.
    - 1) Within three days following execution of the Owner-Contractor Agreement, bid security will be returned to the three apparent lowest Bidders.
    - 2) If the Owner-Contractor Agreement has not been executed within 45 days following the Bid opening, bid security will be returned to the three apparent lowest Bidders, except as noted below.
  - c. Should the accepted Bidder, within 10 days following Notice of Award, fail or refuse to execute the Owner-Contractor Agreement and to provide the required performance and payment bonds, the accepted Bidder will be deemed to have abandoned the Contract and its bid security will be forfeited to the Owner.
4. Bid Submission: Submit each Bid, including attachments, in a sealed envelope bearing the Bidder's name and address, name of Contract, and name of Project. Deliver Bid to location specified no later than the Bid opening date and time indicated. Any Bid received after the Bid opening date and time indicated will be returned unopened.
5. Bid Withdrawal:
  - a. Bid may be withdrawn by the Bidder up until the date and time specified for opening of Bids.
  - b. Following the Bid opening, Bid may not be withdrawn before 45 days following the Bid opening, except in the case of Bidder error, as follows:
    - 1) If the Bidder claims an error in the Bid, submit a written notice to the Architect, within three days of the Bid opening, describing in detail the nature of the error, submitting documentary evidence or proof of such error.



- a) Failure to deliver such notice and evidence or proof, within the time frame required, constitutes a waiver of Bidder's right to claim error.
- 2) Upon receipt of required notice and evidence or proof, the Owner, in consultation with the Architect, will determine if an excusable error has been made; and if so, the Owner may permit the Bid to be withdrawn. The Owner's determination will be conclusive upon the Bidder, its surety, and all who claim rights under the Bidder.

#### ARTICLE 4 BIDDING DOCUMENTS

1. Bidding Documents include the bidding requirements and the proposed Contract Documents, as follows:
  - a. Bidding requirements consist of the following:
    - 1) Notice to Bidders.
    - 2) Instructions to Bidders.
    - 3) Bid Form, with attachments.
    - 4) Proposed Products Form.
    - 5) Proposed Schedule of Values Form.
    - 6) Bidder's Qualifications Form.
  - b. Proposed Contract Documents consist of the following:
    - 1) Owner-Contractor Agreement.
    - 2) Conditions of the Contract.
    - 3) Drawings.
    - 4) Specifications.
    - 5) Addenda.
2. Bidding Document Interpretations or Corrections:
  - a. Submit requests for Bidding Document interpretation to the Architect, in writing using the provided Pre-Bid Request for Interpretation Form, at least five working days prior to the Bid opening.
  - b. Interpretations or corrections will be issued in the form of written Addenda. The Architect will not make oral interpretations or corrections.
  - c. Notification of addenda will be transmitted to registered plan holders via email and will be available to download at [www.tetratetchaeoprojectplanroom.com](http://www.tetratetchaeoprojectplanroom.com) under "public projects".
    - 1) Failure of any Bidder to not download addenda and/or failure to receive any such Addendum by reason of not having registered as a plan holder in accordance with the bidding instructions, shall not relieve the Bidder from any obligation required by the Addendum.
3. Equivalents and Substitutions: The use of manufacturer's brand names, catalog numbers, and similar proprietary identifying data is intended to establish a standard of quality, appearance, and function for those items. It is not the intention of the Owner or the Architect to eliminate from consideration products that are equivalent in quality, appearance, and function to those identified.



- a. Equivalents are pre-award and substitutions are post-award.
  - b. Equivalents:
    - 1) On Proposed Products Form provided, as post-Bid information, identify and list proposed equivalents to specified products as follows:
      - a) Applicable Specification Section and paragraph.
      - b) Proposed manufacturer's name, product brand name, and catalog number of proposed equivalent.
      - c) Note any aspect of the specified product that the proposed equivalent cannot meet.
    - 2) Failure to identify and list proposed equivalents shall be deemed to mean the Bidder will furnish the materials or products indicated in the Contract Documents without exception.
  - c. Substitutions: Refer to Division 01 Specification Section "Substitution Procedures".
4. Any required plan deposit shall be refunded to Bidders who submit a bona fide Bid and return the hard copy (paper) Bidding Documents in full, and in good condition within thirty days following the award of the contract or the rejection of the bids covered by such Bid Documents. If the Bid Documents are not returned in full, or in good condition, the cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded. Partial reimbursement, in an amount equal to the full amount of such deposit for one set of Bid Documents per non-bidder less the actual cost of reproduction of the Bid Documents as determined by the Architect, shall be made for the return of all other copies of the Bid Documents in good condition within thirty days following the award of the contract or the rejection of the bids covered by such Bid Documents. If the Bid Documents are not returned in full, or in good condition, the cost to replace missing or damaged paper documents will be deducted from the deposit.

#### ARTICLE 5 BIDDER'S REPRESENTATIONS

- 1. By submitting a Bid, Bidder represents that:
  - a. Bidder has visited and thoroughly inspected the Project site, and has become fully informed of the conditions relating to the Project;
  - b. Bidder has received, read, and is thoroughly familiar with the Bidding Documents, including all Addenda issued; and
  - c. Bidder has prepared its Bid based on the materials, equipment and systems required by the Bidding Documents or equivalents.

#### ARTICLE 6 BID CONSIDERATION

- 1. Opening of Bids: At the designated Bid opening date and time, Bids received will be publicly opened and read aloud.



2. Bid Rejection:

- a. The Owner requires Bids comply with bidding requirements; however, the Owner may, at its discretion, waive informalities in Bids. The Owner is not obligated to do so and does not represent that it will do so. The Owner will not waive informalities which would give one Bidder substantial advantage or benefit not enjoyed by all affected Bidders.
- b. The Owner reserves the right to reject any and all Bids not deemed in the best interests of the Owner, if in its judgment the public interest will be promoted thereby.
- c. The Owner reserves the right to reject as “informal” any and all Bids which, in its opinion, are incomplete, conditional, obscure, or contain irregularities of any kind.
- d. In rejecting a Bid, the Owner does not forfeit its right to accept the Bid for any other Contract contained in the Project; and the rejection of a Bid is not necessarily a finding by the Owner of any facts or circumstances which would preclude the Bidder from serving as a subcontractor on any portion of the Project.

3. Bid Acceptance: The Owner intends to award the Contract to the responsible Bidder whose Bid complies with conditions to render it formal, who is able to furnish approved surety bonds, and whose Bid is the lowest number of dollars as defined below.

- a. Lowest Bid may be Base Bid plus any Alternates the Owner desires to accept.
- b. If the acceptance of Alternates does not change the low Bidder, the Owner reserves the right to accept any or all Alternates within 45 days following Notice of Award.

ARTICLE 7  
POST-BID INFORMATION

1. Contractor Qualifications: The Owner may make such investigations as it deems necessary to determine the ability of the Bidder to perform the Work.

- a. The Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request, including the provided Bidder’s Qualifications Form.
- b. The Owner reserves the right to reject any Bid if the evidence submitted, or investigation of Bidder fails to satisfy the Owner that the Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

2. Owner’s Financial Capability: Successful Bidder may submit request to Owner for information regarding Owner’s financial arrangements for this Project in accordance with the General Conditions, no later than 30 days following the Bid opening.

3. Post-Bid Submittals:

- a. The three apparent low Bidders shall submit the following completed forms within three days following the Bid opening:
  - 1) Proposed Products Form.
  - 2) Proposed Subcontractors Form.
  - 3) Proposed Schedule of Values Form.
  - 4) Upon request, Bidder’s Qualifications Form.



ARTICLE 8  
PERFORMANCE BOND AND PAYMENT BOND

1. Bond Requirements:

- a. The successful Bidder shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder.
- b. Bonds shall be obtained from a surety satisfactory to the Owner, authorized and licensed to do business in the state where the Project is located, and listed in the latest issue of the U.S. Treasury Circular 570. The amount of each bond shall be equal to 100 percent of the Contract Sum. The sufficiency of the bonds is subject to the approval of the Owner and bonds deemed insufficient by the Owner may be rejected.
- c. Affix a certified and current copy of the power of attorney for the attorney-in-fact who executes the required bonds on behalf of the surety.

2. Time of Delivery and Form of Bonds:

- a. Deliver required bonds to the Owner not later than the date the Agreement is entered into.
- b. Use Performance Bond and Payment Bond, AIA Document A312, unless otherwise approved by the Owner.

ARTICLE 9  
MISCELLANEOUS PROVISIONS

1. All applicable laws, ordinances, rules, and regulations of Federal, State, and other authorities having jurisdiction over the Project shall apply to the Contract throughout, and will be deemed included in the Contract as though herein written out in full.

- a. Sections of the New York State Labor Law (LL) and the New York State General Municipal Law (GML) include, but are not limited to, the following:
  - 1) LL §220, subd. 2: Eight-hour day, 40-hour week.
  - 2) LL §220, subd. 3 and LL §220-d: Minimum rate of wage and supplement.
  - 3) LL §220-e: Prohibiting discrimination.
  - 4) LL §222-a: Prevention of dust hazards.
  - 5) GML §103-d: Statement of non-collusion in bids.
  - 6) GML §106-b: Payment on public work contracts.
  - 7) GML §108: Workmen's compensation insurance.
  - 8) GML §109: Assignment of public contracts.

2. Time of Completion: Refer to Division 01 Section "Multiple Contract Project Summary – Project Schedule".

Attachment: Pre-Bid Request for Interpretation Form

END OF SECTION 00 21 13





**TETRA TECH**  
ARCHITECTS & ENGINEERS

**INSTRUCTIONS TO BIDDERS**  
**ATTACHMENT #1:**  
**PRE-BID REQUEST FOR INTERPRETATION FORM**

**SUBMIT FORM BY EMAIL TO [INE.Wallkill@tetrattech.com](mailto:INE.Wallkill@tetrattech.com)**

**Project No.:** 17597-22001

**Date:**

**Project Name:** Reconstruction to Wallkill Senior High School, John G. Borden Middle School, Leptondale Elementary School, Ostrander Elementary School, Plattekill Elementary School

-----  
**Bidder Contact Person:**

**Bidder Company Name:**

**Bidder Phone:**

**Bidder Email Address:**  
-----

**Question Pertains to:**

**Drawing Number:**

**Plan Area:**

**Room Number:**

**Drawing Detail Number:**

**Specification Section:**  
-----

**Question: (Please be specific)**

-----  
**Review by Architect/Engineers:**

**Responded By:** \_\_\_\_\_ **Date:** \_\_\_\_\_

-----  
Submit requests not less than 5 working days prior to the specified Bid Opening date and time. In the event that this question requires clarification or modification of the Bidding Documents, such written information can only be provided by formal Addendum, distributed to all plan holders.





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** GENERAL WORK CONTRACT (GC-1)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_  
(\$ \_\_\_\_\_)

(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## LIST OF ADDENDA RECEIVED

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

- Attachment #1 - Non-Collusive Bidding Certification.
- Attachment #2 - Certified Corporate Resolution.
- Attachment #3 – Iranian Energy Divestment Certification
- Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** PLUMBING WORK CONTRACT (PC-1)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_ (\$ \_\_\_\_\_)

(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## LIST OF ADDENDA RECEIVED

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

Attachment #1 - Non-Collusive Bidding Certification.

Attachment #2 - Certified Corporate Resolution.

Attachment #3 – Iranian Energy Divestment Certification

Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

---

---

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---

3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

---

---

---

---

4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** MECHANICAL WORK CONTRACT (HVAC-1)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_  
(\$ \_\_\_\_\_)

(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## LIST OF ADDENDA RECEIVED

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_ No. \_\_\_\_\_ Date \_\_\_\_\_

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

Attachment #1 - Non-Collusive Bidding Certification.

Attachment #2 - Certified Corporate Resolution.

Attachment #3 – Iranian Energy Divestment Certification

Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	
(	)	_____
(	)	CORPORATE SEAL
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** ELECTRICAL WORK CONTRACT (EC-1)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_  
(\$ \_\_\_\_\_)  
(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## ALTERNATES

Indicate in the spaces provided below the amount to be added to or the amount to be deducted from (as applicable) the Base Bid if the Owner accepts the following Alternates described in Division 01 Section "Alternates".

Include in the amount of each Alternate, all labor, materials, overhead and profit, modification of Work specified in the Contract Documents, and additional work that may be required by acceptance of the Alternate.

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### **ALTERNATE NO. EC-1-1 - MIDDLE SCHOOL AUDITORIUM HOUSE LIGHTING**

**ADD** to the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

**OR**

**DEDUCT** from the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

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## LIST OF ADDENDA RECEIVED

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

- Attachment #1 - Non-Collusive Bidding Certification.
- Attachment #2 - Certified Corporate Resolution.
- Attachment #3 – Iranian Energy Divestment Certification
- Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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---

4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** SITE WORK CONTRACT (SC-1) – HIGH SCHOOL AREAS A AND B

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_ (\$ \_\_\_\_\_)  
(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## ALTERNATES

Indicate in the spaces provided below the amount to be added to or the amount to be deducted from (as applicable) the Base Bid if the Owner accepts the following Alternates described in Division 01 Section "Alternates".

Include in the amount of each Alternate, all labor, materials, overhead and profit, modification of Work specified in the Contract Documents, and additional work that may be required by acceptance of the Alternate.

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### **ALTERNATE NO. SC-1-1 - SOD AT HIGH SCHOOL JV BASEBALL FIELD**

**ADD** to the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

**OR**

**DEDUCT** from the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

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---



## LIST OF ADDENDA RECEIVED

No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_

No. \_\_\_\_\_ Date \_\_\_\_\_

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

Attachment #1 - Non-Collusive Bidding Certification.

Attachment #2 - Certified Corporate Resolution.

Attachment #3 – Iranian Energy Divestment Certification

Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** SITE WORK CONTRACT (SC-2) – HS NEW PARKING LOT (AREAS C AND E)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_ (\$ \_\_\_\_\_)  
(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## LIST OF ADDENDA RECEIVED

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

- Attachment #1 - Non-Collusive Bidding Certification.
- Attachment #2 - Certified Corporate Resolution.
- Attachment #3 – Iranian Energy Divestment Certification
- Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public





**TETRA TECH**  
ARCHITECTS & ENGINEERS

10 Brown Road  
Ithaca, New York 14850  
(607) 277-7100

Ithaca, New York  
Farmingdale, New York  
Albany, New York

**BID FROM** (Bidder's Name) : \_\_\_\_\_

(Address) : \_\_\_\_\_

Bidder's Telephone : \_\_\_\_\_

Bidder's Facsimile (Fax) : \_\_\_\_\_

Bidder's E-mail Address : \_\_\_\_\_  
(if applicable)

**BID FORM**  
**(submit in duplicate)**

**CONTRACT:** SITE WORK CONTRACT (SC-3) - OSTRANDER ELEMENTARY SCHOOL AND DON ANDREWS FIELD AT HIGH SCHOOL (HIGH SCHOOL AREA D)

**PROJECT TITLE:** RECONSTRUCTION TO WALLKILL SENIOR HIGH SCHOOL, JOHN G. BORDEN MIDDLE SCHOOL, LEPTONDALE ELEMENTARY SCHOOL, OSTRANDER ELEMENTARY SCHOOL, PLATTEKILL ELEMENTARY SCHOOL

**DATE:** NOVEMBER 4, 2022

**PROJECT NO.:** 17597-22001

**BID TO:** Board of Education  
Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

The Bidder hereby certifies that it has examined and fully understands the requirements and intent of the Bidding Documents, including the Bidding Requirements and proposed Contract Documents; and proposes to furnish all labor, materials, and equipment necessary to complete the Work on, or before, the dates specified in the Contract Documents for the **BASE BID** sum of:

\_\_\_\_\_  
(words)

\_\_\_\_\_  
(\$ \_\_\_\_\_)  
(figures)

Show all amounts in both words and figures; in the event of a discrepancy between amounts written in words and figures, the amount written in words shall govern.

**Refer to Division 01 Section "Allowances" for description of allowances to be included in the Base Bid above.**



## ALTERNATES

Indicate in the spaces provided below the amount to be added to or the amount to be deducted from (as applicable) the Base Bid if the Owner accepts the following Alternates described in Division 01 Section "Alternates".

Include in the amount of each Alternate, all labor, materials, overhead and profit, modification of Work specified in the Contract Documents, and additional work that may be required by acceptance of the Alternate.

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### **ALTERNATE NO. SC-3-1 - HIGH SCHOOL AREA "D" FIELD DRAINAGE IMPROVEMENTS**

**ADD** to the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

**OR**

**DEDUCT** from the Base Bid the sum of:

\_\_\_\_\_ ( \$ \_\_\_\_\_ )  
(words) (figures)

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## LIST OF ADDENDA RECEIVED

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____

## BID ATTACHMENTS

Enclosed with this Bid are the following attachments:

- Attachment #1 - Non-Collusive Bidding Certification.
- Attachment #2 - Certified Corporate Resolution.
- Attachment #3 – Iranian Energy Divestment Certification
- Attachment #4 – Certification on Violations

## BID SECURITY

Enclosed with this Bid is bid security in the amount of five percent of the Base Bid.

## EXECUTION OF CONTRACT

If written notice of the acceptance of this Bid is transmitted to the undersigned within 45 days following the Bid opening, the undersigned will, within 10 days following the Notice of Award, execute and transmit a Contract in the form as required by the Architect.

This Bid may be withdrawn at any time prior to the Bid opening.

## SIGNATURE

(	)	NAME OF BIDDER (Corporate Name)
(	)	
(	)	_____
(	)	Corporate Seal
(	)	
(	)	SIGNATURE (Corporate Officer)
(	)	
(	)	_____
(	)	
(	)	DATE: _____



**BID FORM**  
**ATTACHMENT #1**

**GENERAL CONDITIONS TO BID**  
**NON-COLLUSIVE BIDDING CERTIFICATION**

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competitor;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certified by the signature of this bid or proposal in behalf of the corporate bidder.

\_\_\_\_\_  
(Individual)

\_\_\_\_\_  
(Corporation)

Dated: \_\_\_\_\_ By \_\_\_\_\_  
(Signature of Officer)

**This Non-Collusive Bidding Certificate must be submitted with the bid.**



**BID FORM**  
**ATTACHMENT #2**

**CERTIFIED CORPORATE RESOLUTION**

RESOLVED THAT \_\_\_\_\_ be authorized to sign and submit the bid or proposal of this corporation for the following project:

\_\_\_\_\_  
\_\_\_\_\_

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d (103-d) of the general municipal law as to the act and deed of such corporation, and for any inaccuracies or mis-statements in such certificate this corporate bidder shall be liable under the penalties of perjury.

The foregoing is a true and correct copy of the resolution and adopted by

\_\_\_\_\_ at a meeting of its board of directors held on the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ .

\_\_\_\_\_  
(Secretary)



**BID FORM**  
**ATTACHMENT #3**

**IRANIAN ENERGY DIVESTMENT CERTIFICATION**

**Pursuant to Section 103-g  
Of the New York State  
General Municipal Law**

- A. By submission of this bid/proposal, each bidder/proposer and each person signing on behalf of any bidder/proposer certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to paragraph (b) of subdivision 3 of Section 165-a of the New York State Finance Law.
- B. A Bid/Proposal shall not be considered for award, nor shall any award be made where the condition set forth in Paragraph A above has not been complied with; provided, however, that in any case the bidder/proposer cannot make the foregoing certification set forth in Paragraph A above, the bidder/proposer shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where Paragraph A above cannot be complied with, the Purchasing Unit to the political subdivision, public department, agency or official thereof to which the bid/proposal is made, or his designee, may award a bid/proposal, on a case by case business under the following circumstances:
1. The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
  2. The political subdivision makes a determination that the goods or services are necessary for the political subdivision to perform its functions and that, absent such an exemption, the political subdivision would be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company



**BID FORM**  
**ATTACHMENT #4**

**CERTIFICATION ON VIOLATIONS**

\_\_\_\_\_, a representative of \_\_\_\_\_, hereby swears to and certifies that, to the best of his or her knowledge and belief:

1. Neither \_\_\_\_\_, nor any substantially owned-affiliated entity of the Bidder (collectively the "Bidder"), has been found to be in violation of the Davis-Bacon Act pursuant to 40 U.S.C. 3144, the Copeland Act pursuant to 18 U.S.C. 874 and 40 U.S.C. 3145 or the Contract Work Hours and Safety Standards Act pursuant to 40 U.S.C. 332, or their New York State counterparts.

☐ True      ☐ False

If False is selected, information for questions 2 and 3 must be provided. If True is selected questions 2 and 3 are not applicable, continue to question 4.

2. If the Bidder has been found to be in violation of the Davis-Bacon Act, the Copeland Act, the Contract Work Hours and Safety Standards Act, or any of their New York State counterparts, state the name of the agency, the date of the violation, the nature of the violation and any consequence of the violation, including warnings, fines and debarments below.

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3. The Bidder is not currently under investigation by any local, state or federal government agency. If Bidder is under investigation, state the name of the agency, the date of the alleged violation and the nature of the alleged violation below.

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4. The Bidder's Dun & Bradstreet D-U-N-S number is \_\_\_\_\_.

5. I have authority to execute this certification, knowing it will be relied upon by the Owner of this Project.

\_\_\_\_\_  
Name Title

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Notary Public



NAME OF BIDDER \_\_\_\_\_

**PROPOSED PRODUCTS FORM****SUBMITTED BY THREE LOW BIDDERS WITHIN THREE DAYS FOLLOWING BID OPENING**

In accordance with Articles 4 and 6 of the Instructions to Bidders, list specified products and corresponding proposed equivalent products below. Include additional pages as necessary.

*Attach additional sheet explaining any aspect of the Contract Documents that cannot be complied with by the manufacturer or supplier of the proposed equivalent product.*

**Specified Product****Equivalent Product**

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_

Technical Section: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Specified Product: \_\_\_\_\_

Product

Designation: \_\_\_\_\_



NAME OF BIDDER \_\_\_\_\_

**PROPOSED SUBCONTRACTORS FORM****SUBMITTED BY THREE LOW BIDDERS**  
**WITHIN THREE DAYS FOLLOWING BID OPENING**

Review of proposed subcontractors shall be in accordance with Article 5.2 of the General Conditions.

## Instructions:

1. List below name of each subcontractor whose figures have been used in preparing the Bid, and to whom a subcontract is expected to be awarded, upon Architect's review, should the Contract be awarded to the Bidder.
2. For each subcontractor, identify the Specification section(s) included in that subcontract.

<b><u>Subcontractor Name</u></b>	<b><u>Specification Section</u></b>



NAME OF BIDDER \_\_\_\_\_

**PROPOSED SCHEDULE OF VALUES FORM**SUBMITTED BY THREE LOW BIDDERS WITHIN THREE DAYS FOLLOWING BID OPENING

For the convenience of the Owner's preliminary analysis of the Bid, list the value of the Work included in the Base Bid sum for each building:

Wallkill Senior High School ..... \$ \_\_\_\_\_

John G. Borden Middle School ..... \$ \_\_\_\_\_

Ostrander Elementary School ..... \$ \_\_\_\_\_

Plattekill Elementary School ..... \$ \_\_\_\_\_

Leptondale Elementary School ..... \$ \_\_\_\_\_

Total Base Bid ..... \$ \_\_\_\_\_



NAME OF BIDDER \_\_\_\_\_

**BIDDER'S QUALIFICATIONS FORM****NOTARIZED AND SUBMITTED BY THREE LOW BIDDERS**  
**WITHIN THREE DAYS FOLLOWING BID OPENING**  
**UPON REQUEST BY ARCHITECT**

All questions must be answered and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheet.

1. Name of Bidder:
2. Permanent main office address:
3. When organized:
4. If a corporation, where incorporated:
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (List these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company:
8. Have you ever failed to complete any work awarded to you?  
If so, where and why?
9. Have you ever defaulted on a contract?  
If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this Contract.
12. List your experience in work similar to this project.
13. List the background and experience of the principal members of your organization, including officers.
14. List the work to be performed by Subcontractors and summarize the dollar value of each Subcontract.
15. Credit available: \$
16. Give bank reference:



- Tetra Tech  
Architects & Engineers





# AIA<sup>®</sup> Document A232<sup>®</sup> – 2019

## ***General Conditions of the Contract for Construction, Construction Manager as Adviser Edition***

### **for the following PROJECT:**

*(Name, and location or address)*

Reconstruction to  
Wallkill Senior High School  
John G. Borden Middle School  
Leptondale Elementary School  
Plattekill Elementary School  
Tt Project Number 17597-22001

### **THE CONSTRUCTION MANAGER:**

*(Name, legal status, and address)*

Barone Construction Group Inc.  
23 New Paltz Road  
Highland, New York 12528

### **THE OWNER:**

*(Name, legal status, and address)*

Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

### **THE ARCHITECT:**

*(Name, legal status, and address)*

Tetra Tech Engineers, Architects & Landscape Architects, P.C.  
d/b/a Tetra Tech Architects & Engineers  
Cornell Business & Technology Park  
10 Brown Road  
Ithaca, New York 14850

### **ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.



## TABLE OF ARTICLES

1	GENERAL PROVISIONS
2	OWNER
3	CONTRACTOR
4	ARCHITECT AND CONSTRUCTION MANAGER
5	SUBCONTRACTORS
6	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7	CHANGES IN THE WORK
8	TIME
9	PAYMENTS AND COMPLETION
10	PROTECTION OF PERSONS AND PROPERTY
11	INSURANCE AND BONDS
12	UNCOVERING AND CORRECTION OF WORK
13	MISCELLANEOUS PROVISIONS
14	TERMINATION OR SUSPENSION OF THE CONTRACT
15	CLAIMS AND DISPUTES



## ARTICLE 1 GENERAL PROVISIONS

### § 1.1 Basic Definitions

**§ 1.1.1 The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The Contract Documents include the Notice to Bidders, Instructions to Bidders, sample forms, and the Contractor's bid..

**§ 1.1.2 The Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

**§ 1.1.3 The Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

**§ 1.1.4 The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors, and by the Owner's own forces and Separate Contractors.

**§ 1.1.5 Contractors.** Contractors are persons or entities, other than the Contractor or Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager.

**§ 1.1.6 Separate Contractors.** Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

**§ 1.1.7 The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

**§ 1.1.8 The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

**§ 1.1.9 Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

**§ 1.1.10 Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

### § 1.2 Correlation and Intent of the Contract Documents

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as



binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service**

**§ 1.5.1** The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### **§ 1.6 Notice**

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

**§ 1.6.2** Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### **§ 1.7 Digital Data Use and Transmission**

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.



## **§ 1.8 Building Information Models Use and Reliance**

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## **ARTICLE 2 OWNER**

### **§ 2.1 General**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

*(Paragraph deleted)*

### **§ 2.2 Evidence of the Owner's Financial Arrangements**

**§ 2.2.1** Prior to commencement of the Work, and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within thirty (30) days of the Contractor's written request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' written notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

### **§ 2.3 Information and Services Required of the Owner**

**§ 2.3.1** Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, assisted by the Construction Manager, shall secure and pay for the building permit.



§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 2.3.5 The Owner shall furnish, upon written request, only, and as necessary to complete the work, surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to reasonably rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.6 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.7 The Owner shall furnish the Contractor <two (2)> copies of the Contract Documents, including one set to be used for the Project Record Drawings. The Contractor may purchase additional copies at the cost of reproduction, postage and handling.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6.

#### § 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a Five-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### ARTICLE 3 CONTRACTOR

#### § 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express



authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

**§ 3.1.2** The Contractor shall perform the Work in accordance with the Contract Documents.

**§ 3.1.3** The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

**§ 3.2 Review of Contract Documents and Field Conditions by Contractor**

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has carefully examined the Contract Documents and the site, and represents that the Contractor is thoroughly familiar with the nature and location of the Work, the site, the specific conditions under which the Work is to be performed, and all matters which may in any way affect the Work or its performance. The Contractor further represents that as a result of such examinations and investigations, the Contractor thoroughly understands the Contract Documents and their intent and purpose, and is familiar with all applicable codes, ordinances, laws, regulations, and rules as they apply to the Work, and that the Contractor will abide by same. Claims for additional time or additional compensation as a result of the Contractor's failure to follow the foregoing procedure and to familiarize itself with all local conditions and the Contract Documents are waived and will not be permitted.

**§ 3.2.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims in writing as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

**§ 3.2.4.1** The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and not responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

**§ 3.2.5** Where existing conditions are obscured or concealed from the Owner or Architect's view prior to the start of this Project's construction activities, portrayal of such conditions in the documents is based on reasonable implications



and assumptions. The Owner and Architect do not imply or guarantee to the Contractor in any way that such portrayals in the Documents are accurate or true.

**§ 3.2.5.1** Physical investigations and testing of existing conditions were not undertaken by the Architect, unless so indicated in the Contract Documents.

**§ 3.2.5.2** The Contractor may submit written requests for information to the Architect to help facilitate the Contractor's performance of the contract. Prior to submitting each request for information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources.

**§ 3.2.5.3** Each request for information shall be submitted to the Architect, in writing, with a copy to the Construction Manager. Each request for information shall identify the specific sources which were reviewed by the Contractor in an effort to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

**§ 3.2.5.4** The Contractor shall submit each request for information sufficiently in advance of the date by which such information is requested in order to allow the Architect sufficient time, in the Architect's professional judgment, to permit adequate review and response and to permit Contractor compliance with the latest construction schedule.

**§ 3.2.5.5** The Construction Manager shall maintain a log at the Project site that sequentially numbers and lists each request for information. This log shall contain the Drawings reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof. This log shall be reviewed at each Project meeting and the status of the requests for information shall be made part of the minutes of such meetings.

**§ 3.2.5.6** The Contractor shall reimburse the Owner amounts charged to the Owner by the Architect or Construction Manager for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, or prior Project correspondence or documentation.

### **§ 3.3 Supervision and Construction Procedures**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

### **§ 3.4 Labor and Materials**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other



facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.2.1** After the Contract has been executed, the Owner and Architect will consider requests for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 01 of the Specifications). By making requests for substitutions, the Contractor:

- .1 represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
- .2 represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3 certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be changed as a result of the substitution, except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution that subsequently become apparent; and
- .4 shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

**§ 3.4.2.2** The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions for convenience after the period noted in Division 01 Section "Substitution Procedures" and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### **§ 3.6 Taxes**

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor, to the extent practicable, that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

**§ 3.6.1** The Owner is exempt from payment of Federal, State, local taxes, and from payment of sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not to be included in bids. This exemption does not, however, apply to tools, machinery, equipment, or other property leased by, or to the Contractor or a subcontractor; and the Contractor and its subcontractor shall be responsible for, and pay, any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property.



### **§ 3.7 Permits, Fees, Notices, and Compliance with Laws**

**§ 3.7.1** The Owner, through the Construction Manager, shall secure and pay for the building permit from the New York State Education Department. The Contractor shall secure and pay for all other permits, fees, licenses, and inspections by government agencies necessary for proper execution of and completion of the contract, which are legally required.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.2.1** The Contractor shall comply with all applicable New York State Department of Labor requirements, including the provision that every worker employed in performance of a public work contract shall be certified as having completed an OSHA 10-hour safety training course. The Contractor and Subcontractor shall be solely responsible for compliance with this requirement with respect to their employees. The Contractor's or Subcontractor's failure to comply with this requirement shall not transfer or in any way impose the responsible for worker safety upon the Owner or the Architect.

**3.7.2.2** In accordance with New York State Labor Law Article 8, Section 220, subd. 3-a(a), the Contractor shall submit to the Owner within 30 days after issuance of Contractor's first payroll, and every 30 days thereafter, a transcript of the original payroll record, subscribed and affirmed as true under the penalties of perjury.

**§ 3.7.3** If the Contractor or Subcontractor performs Work which it knows or should have known was contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

**§ 3.7.4 Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect in writing before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

**§ 3.7.5** If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### **§ 3.8 Allowances**

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents.

- .1** Contingency Allowances shall cover the direct cost to the Contractor and Subcontractors for labor, materials and equipment, including delivery, unloading, storage, handling and installation. They do not include the Contractor's overhead and profit, including the costs of bonds, insurance, administration and supervision, which costs should be carried as part of the Contract Sum.
- .2** The Architect shall create and process Allowance Access Authorizations for the Construction Manager and Owner's approval and execution in accordance with the Contract Documents.



**§ 3.8.2**

*(Paragraphs deleted)*

Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

*(Paragraph deleted)*

**§ 3.8.3** Refer to Division 01 Section "Allowances" for additional information.

**§ 3.9 Superintendent**

**§ 3.9.1** The Contractor shall employ and designate a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The superintendent shall be in attendance at the project site full time throughout the work, including completion of the punch list. The superintendent must speak the English language clearly.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 3.9.3** The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

**§ 3.10 Contractor's Construction and Submittal Schedules**

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

**§ 3.10.3** The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

**§ 3.10.4** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.



### **§ 3.11 Documents and Samples at the Site**

The Contractor shall maintain and make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals in good order and condition. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### **§ 3.12 Shop Drawings, Product Data, and Samples**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

**§ 3.12.3** Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

**§ 3.12.4** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

**§ 3.12.6** By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**§ 3.12.7** The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect.

**§ 3.12.8** The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

**§ 3.12.9** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.



§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.

§ 3.12.11 The Contractor is required to provide all submittals for the Architect's review. All submittals are to be provided to the Architect by the Submittal deadlines noted in the Contract Documents. The Architect's review of Contractor's submittals will be limited to the time preceding the Submittal deadline and will consist of an examination of an initial submittal and 1 resubmittal[s]. The Owner is entitled to obtain reimbursement from the Contractor for amounts paid to the Architect for evaluation of additional resubmittals, and for evaluation of submittals for which the initial submission is received after the Submittal deadlines.

### § 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13.3 The Contractor shall be responsible for enforcing **the Owner's security and access policies and procedures, the Owner's Code of Conduct, and** the following rules of conduct for its personnel and those of its subcontractors, sub-subcontractors, and suppliers at the Project site, and the Owner's Project Representative shall provide interpretations should a question arise if the rules of conduct are being adequately enforced by the Contractor:

- .1 No smoking or use of tobacco products.
- .2 No drinking of alcoholic beverages or use of controlled substances.
- .3 No working, or presence on site, under the influence of alcoholic beverages or controlled substances.
- .4 No use of indecent language or display of indecent images, publications or terms.
- .5 No use of radios or other entertainment devices.
- .6 No horseplay or dangerous behavior.
- .7 No firearms or other weapons.
- .8 No communication with staff or students.



§ 3.13.4 The Contractor shall require its personnel and those of its subcontractors, sub-subcontractors and suppliers to wear visible photo-identification badges acceptable to the Owner, at all times for identification and security purposes.

#### **§ 3.14 Cutting and Patching**

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

#### **§ 3.15 Cleaning Up**

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

#### **§ 3.16 Access to Work**

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located.

#### **§ 3.17 Royalties, Patents and Copyrights**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect through the Construction Manager.

#### **§ 3.18 Indemnification**

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner, Construction Manager, Architect, each of their consultant's, officers, board members, agents, and employees from and against any suits, claims, damages, losses, or expenses, including but not limited to attorneys' fees and litigation costs, arising out of or resulting from performance of the Work, provided that such suit, claim, damage, loss or expense is attributable to any bodily injury, sickness, disease, or death, or injury to or destruction of any tangible property, including loss of use resulting therefrom, but only to the extent caused in whole or in part by the act, omission, fault, breach of contract, breach of warranty or statutory violation of the Contractor, a subcontractor, or any person or entity directly or indirectly employed by them, or any person or entity for whose acts they may be liable or arises out of operation of law as a consequence of any act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of the above may be liable, regardless of whether any of them has been negligent.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages,



compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## **ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER**

### **§ 4.1 General**

**§ 4.1.1** The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

**§ 4.1.2** The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 and identified as such in the Agreement.

**§ 4.1.3** Duties, responsibilities, and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Construction Manager, Architect, and Contractor. Consent shall not be unreasonably withheld.

### **§ 4.2 Administration of the Contract**

**§ 4.2.1** The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

**§ 4.2.2.1** The Contractor shall reimburse the Owner for compensation paid to the Architect and/or Construction Manager for additional site visits made necessary by the fault, neglect, deficiencies in the work, or request of the Contractor.

**§ 4.2.2** The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager known deviations from the Contract Documents and defects and deficiencies observed in the Work.

**§ 4.2.3** The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect known deviations from the Contract Documents and the most recent Project schedule, and defects and deficiencies observed in the Work.

**§ 4.2.4** The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

**§ 4.2.5** The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

**§ 4.2.6 Communications.** The Owner shall communicate with the Contractor and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Construction Manager otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with



Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

**§ 4.2.7** The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

**§ 4.2.8** The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other, and the Owner, in writing about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

**§ 4.2.9** Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

**§ 4.2.10** The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

**§ 4.2.11** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

**§ 4.2.12** Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.13** The Architect will prepare, will prepare Change Orders, Construction Change Directives and Allowance Change Authorizations..

**§ 4.2.14** The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the



Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

*(Paragraph deleted)*

§ 4.2.18 The Architect will interpret and decide matters concerning performance of the Contractor under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.19 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.20 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 Definitions**

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work**

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, but no later than fourteen (14) days prior to the start of construction, shall notify furnish in writing to the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed



person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 5.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**§ 5.2.3** If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

**§ 5.2.4** The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

### **§ 5.3 Subcontractual Relations**

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including, but not limited to, the responsibility for safety of the Subcontractor's Work, and obligations to defend and indemnify the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

### **§ 5.4 Contingent Assignment of Subcontracts**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

**§ 5.4.3** Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.



## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts**

**§ 6.1.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

**§ 6.1.2** When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

**§ 6.1.3** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

### **§ 6.2 Mutual Responsibility**

**§ 6.2.1** The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect in writing and in detail of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

**§ 6.2.4** The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5.

**§ 6.2.5** The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### **§ 6.3 Owner's Right to Clean Up**

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

## **ARTICLE 7 CHANGES IN THE WORK**

### **§ 7.1 General**

**§ 7.1.1** Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.



**§ 7.1.2** A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

**§ 7.1.3** Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

**§ 7.1.4** The combined overhead and profit (for Contractor, subcontractors, suppliers, and contractors of a lower-tier) included in the total cost to the Owner for a change in the Work shall be as follows:

- .1 Maximum combined overhead and profit, 15 percent of the cost.
- .2 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.
- .3 To facilitate checking of quotations for extras or credits, all proposals shall be accompanied by a complete itemization of costs including labor, materials, rental costs, and Subcontracts. Subcontracts shall be itemized also.
- .4 The additional bond charges for the total change order, two percent (2%) of the cost shall also apply to Deduct Change orders.

## **§ 7.2 Change Orders**

A Change Order is a written instrument prepared by the Architect and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

## **§ 7.3 Construction Change Directives**

**§ 7.3.1** A Construction Change Directive is a written order prepared by the Architect, in coordination with the Construction Manager, and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

**§ 7.3.2** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

**§ 7.3.4** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless



otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools and equipment normally encumbered to perform the work, whether rented from the Contractor or others; and
- .4 Intentionally omitted.
- .5 Costs of supervision and field office personnel directly attributable to the change.
- .6 Overhead and profit mark-up shall include, but not be limited to, the following:
  - .1 home office expense;
  - .2 field office expense;
  - .3 supervision;
  - .4 project management & estimation; and
  - .5 small tools & equipment.

**§ 7.3.5** If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

**§ 7.3.6** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

**§ 7.3.7** A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**§ 7.3.8** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 7.3.9** Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

**§ 7.3.10** When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### **§ 7.4 Minor Changes in the Work**

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.



## ARTICLE 8 TIME

### § 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### § 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect, based on the recommendation of the Construction Manager, determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 The Owner shall not be liable to the Contractor and/or any subcontractor for claims or damages of any nature caused by or arising out of delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the claims procedure set forth herein. Except to the extent, if any, expressly prohibited by law, the Contractor expressly agrees not to make and hereby waives any claim for damages for delay, including, but not limited to, those resulting from increased labor or material costs; directions given or not given by the Owner, Construction Manager or Architect, including scheduling and coordination of the Work; the Architect's preparation of drawings and specifications or review of shop drawings and requests for instruction(s); or, on account of any delay, obstruction or hindrance for any cause whatsoever by the Owner, Construction Manager, Architect, or any other contractor on the project, whether or not foreseeable or anticipated. The Contractor agrees that its sole right and remedy therefor shall be an extension of time, if appropriate.

**IT IS EMPHASIZED THAT NO MONETARY RECOVERY MAY BE OBTAINED BY THE CONTRACTOR FOR DELAY AGAINST THE OWNER, CONSTRUCTION MANAGER, OR ARCHITECT BASED ON ANY REASON AND THAT THE CONTRACTOR'S SOLE REMEDY, IF APPROPRIATE, IS ADDITIONAL TIME."**

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.



§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

## § 9.2 Schedule of Values

The Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

## § 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 Until Substantial Completion, the Owner shall pay ninety-five percent (95%) of the amount due to the Contractor on account of progress payments.

§ 9.3.1.4 When the work or major portions thereof as contemplated by the terms of the Contract are substantially complete, the Contractor shall submit to the Construction Manager and Architect a requisition for payment of the remaining amount of the Contract balance. Upon receipt of such requisition, the Owner shall approve and promptly pay the remaining amount of the Contract less two times the value of any remaining items to be completed and an amount necessary to satisfy any claims, liens or judgments against the Contractor, which have not been suitably discharged, as determined by the Architect in conjunction with the Construction Manager. Any claims, liens or judgments referred to in this clause shall pertain to the Project and shall be filed in accordance with the terms of the Contract, and applicable laws.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. The Owner shall have the right, at any time on reasonable notice to inspect materials and equipment which have been stored off the site in accordance with this paragraph.

§ 9.3.2.1 Proof of insurance for items stored off site and copies of invoices are to be provided with Applications for Payment requesting payment for stored materials.



**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

#### **§ 9.4 Certificates for Payment**

**§ 9.4.1** Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

**§ 9.4.2** Where there is more than one Contractor performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives all of the Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Contractor's application with information from similar applications for progress payments from the other Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

**§ 9.4.2.1** Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Project Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Project Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

**§ 9.4.3** The Construction Manager's certification of an Application for Payment or, in the case of more than one Contractor, a Project Application and Certificate for Payment, shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

**§ 9.4.4** The Architect's issuance of a Certificate for Payment or, in the case of more than one Contractor, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is, or Contractors are, entitled to payment in the amount certified.

**§ 9.4.5** The representations made pursuant to Sections 9.4.3 and 9.4.4 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.



**§ 9.4.6** The issuance of a Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

## **§ 9.5 Decisions to Withhold Certification**

**§ 9.5.1** The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor or other Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- .7 repeated failure to carry out the Work in accordance with the Contract Documents; or
- .8 failure of Contractor to provide executed supplementary bid forms, performance and payment bonds or a current Certificate of Insurance.

**§ 9.5.2** When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

**§ 9.5.3** When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

**§ 9.5.4** If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

## **§ 9.6 Progress Payments**

**§ 9.6.1** After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

**§ 9.6.2** The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.



**§ 9.6.3** The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

**§ 9.6.4** The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

**§ 9.6.5** The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

**§ 9.6.6** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

**§ 9.6.7** Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

**§ 9.6.8** Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

## **§ 9.7 Intentionally omitted.**

## **§ 9.8 Substantial Completion**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

**§ 9.8.1.1** No later than 14 days prior to the Contract-scheduled date of Substantial Completion, the Contractor shall issue a letter to the Architect and Construction Manager confirming their work is on schedule for Substantial Completion by the contract specified date. No later than seven days after Contract-scheduled date of Substantial Completion (including authorized adjustments), the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. Absent the contractor letter confirming readiness of work, the Architect may elect to postpone the substantial completion inspection. If the Architect's inspection discloses any item which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine the actual date of Substantial Completion.

**§ 9.8.1.2** The Architect will perform no more than one inspection to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections.

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and



Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the Contractor's punchlist, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's punchlist, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

**§ 9.8.4** When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

**§ 9.8.6** In the event the Contractor does not achieve final completion within sixty (60) days after the date of Substantial Completion, allowing for any approved extensions of the Contract time, Contractor shall not be entitled to any further payment and Contractor agrees that such failure to complete the work within the time set forth above shall constitute a waiver of all claims by the Contractor to any money that may be due. This provision shall not operate as a waiver by the Owner of any claims or remedies of any nature against the Contractor arising out of the Contract.

## **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final



Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment or Project Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

**§ 9.10.6** If the Contractor is responsible for delays in the final completion and closeout beyond the contract specified time, the Owner shall be entitled to reimbursement from the Contractor for amounts paid by the Owner to subsequently extend the Electronic Submittal System (Submittal Exchange).



## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

### **§ 10.2 Safety of Persons and Property**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and
- .4 construction or operations by the Owner, Separate Contractors, or other Contractors.

**§ 10.2.2** The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

**§ 10.2.3** The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

**§ 10.2.4** When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

**§ 10.2.5** The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

**§ 10.2.6** The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

**§ 10.2.7** The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

### **§ 10.2.8 Injury or Damage to Person or Property**

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.



### § 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner, Construction Manager and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 Intentionally omitted.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

*(Paragraph deleted)*

### § 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

## ARTICLE 11 INSURANCE AND BONDS

### § 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Construction Manager and Construction Manager's consultants, and the Architect and Architect's consultants, shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed, including private entities performing Work at the site and exempt from the coverage on account of the number of employees or occupation, such entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project;



- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees or persons or entities excluded by statute from the requirements of Clause 11.1.1.1, but required by the Clause;
- .3 Claims for damages because of bodily injury, occupational sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage; which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations;
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

**§ 11.1.2** The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 11.1.3** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

**§ 11.1.4** The limits of liability of the insurance required above shall be as follows:

- .1 **Commercial General Liability (CGL)**  
**Limits of Insurance not less than:**  
**\$1,000,000 Each Occurrence**  
**\$1,000,000 Personal & Advertising Injury**  
**\$2,000,000 General Aggregate per project/location**  
**\$2,000,000 Products/Completed Operations Aggregate**  
**\$100,000 Fire Damage Legal Liability**  
**\$10,000 Medical Payments**
  - a. The CGL coverage shall contain a General Aggregate Limit, such General Aggregate shall apply separately to each project.
  - b. CGL coverage shall be written on ISO Occurrence form CG 00 01 1093 or a substitute form providing equivalent coverage and shall cover liability arising from premises, operations, independent contractors, products-completed operations, and personal and advertising injury.
  - c. Owner, Architect and their consultants, Owner's Representative, and all other parties required by Owner, shall be included as additional insureds on the Commercial General Liability, using ISO Additional Insureds Endorsement CG 20 10 11 85 or CG 2010 (10/93) and CG 20 3 7 (10/01) or CG2033 (10/01) and CG2037 (10/01) or an endorsement providing equivalent coverage to the additional insureds. This insurance for the additional insureds shall be as broad as the coverage provided for the named insured subcontractor. It shall apply as Primary and non-contributing Insurance before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the additional insured.
  - d. Attached to each certificate of insurance shall be a copy of the additional Insured Endorsement address in c.) above.
  - e. Contractor shall maintain Commercial General Liability coverage for itself and all additional insureds for the duration of the project and maintain Completed Operations coverage for itself and each additional insured for least 3 years after completion of the Work.
- .2 **Automotive Liability**



- a. Business Auto Liability with limits of at least \$1,000,000 each accident for bodily injury and/or property damage.
  - b. Business Auto coverage must include coverage for liability arising out of all owned, leased, hired and non-owned automobiles.
  - c. Owner and other parties required by the Owner, shall be included as additional insured on the auto policy on a primary and non-contributing basis.
- .3 Commercial Umbrella
- a. Umbrella limits must be at least a minimum of \$5,000,000 or available policy limits if policy limits are higher.
  - b. Umbrella coverage must include as additional insureds all entities that are additional insureds on the Commercial General Liability Policy.
  - c. Umbrella coverage for such additional insureds shall apply as primary and non-contributing before any other insurance or self-insurance, including other than the Commercial General Liability, Auto Liability and Employers Liability coverages maintained by the Contractor.
  - d. Attached to each certificate of insurance shall be a copy of the Additional Insured Endorsement addressed in b.) and c.) above.
- .4 Workers Compensation and Employers Liability
- a. Employers Liability Insurance limits of at least \$500,000, each accident, \$500,000 for bodily injury by accident and \$500,000 each employee for injury by disease.
  - b. Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy.
  - c. Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.
- .5 Environmental Impairment Liability (Pollution Insurance) (EIL)
- a. Contractors involved with the removal and/or abatement of pollutants (including but not limited to asbestos abatement contractors, lead abatement contractors, roofing contractors, tank removal contractors) are required to maintain a minimum of \$1,000,000 EIL coverage.
  - b. Owner and all other parties required by the Owner, shall be included as additional insured on the EIL policy on a primary and non-contributing basis.
- .6 Owners Contractors Protective Liability Insurance: A separate policy of insurance naming the Owner, Architect and the Construction Manager as the insureds. The original policy shall be submitted for retention by Owner. A copy shall be sent to the Architect through the Owner's Representative. Said separate policy shall be in the amounts of One Million Dollars (\$1,000,000) per occurrence, and in the aggregate of two million dollars (\$2,000,000) for bodily injury and property damage and shall provide coverage for the Owner, Architect and Owner's Representative, their agents, officers and employees, with respect to said work. Said policy shall provide that the coverage afforded thereby shall be primary coverage to the full limits of liability stated in the declarations, and if said Owner, Architect or Owner's Representative, their officers and employees have other insurance against the loss covered by said policy, that other insurance shall be excess insurance only. This coverage shall last for the duration of the contract.
- .7 Prior to commencing the Work, the Owner shall supply the Contractor and Owner's Representative with a certificate of insurance providing evidence of insurance coverage for the Contractor for Builder's Risk/Installation Floater "All Risk" insurance shall protect the Contractor, the Contractor's Subcontractors, the Architect and the Owner's Representative from losses resulting from, but not limited to, natural disasters, fire, extended coverage perils, vandalism, malicious mischief or collapse during the course of construction. The amount of such insurance shall be not less at any time than the total value of the Work in place, on site, in transit or in storage off site and the loss under such policies shall be made payable to the Owner and/or the Contractor or other insureds, as their respective interest may appear. The policy shall cover all property to be used in, or incidental to, the fabrication and/or erection and/or completion of the project. It shall include all materials, machinery, equipment and supplies intended to become part of such property and false work, temporary trestles and similar structures. It shall not include tools, Contractor's equipment and any other property not a part or destined to become part of the



project. The Owner should be advised of the amount, if any, of a deductible amount exceed \$5,000,000. The Contractor shall provide the Owner upon request with copies of any of the insurance policies required to be maintained pursuant to this Article.

.8 The amount of insurance contained in the aforementioned insurance coverages shall not be construed to be a limitation of the liability on the part of the Contractor or any of its subcontractors.

.9 At the Owner's request, the Contractor shall provide a copy of the declaration page of the liability and umbrella/excess policies with a list of endorsements and forms. There will be no coverage restrictions and/or exclusions involving the New York State Labor Law statutes or gravity related injuries.

.10 A fully completed New York Construction Certificate of Liability Insurance Addendum (ACORD 855 2014/15) must be included with the certificates of insurance. For any "Yes" answers on Items G through L on this Form— additional details must be provided in writing. Policy exclusions may not be accepted.

**§ 11.1.5 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

#### **§ 11.2 Owner's Insurance**

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform both the Contractor and the Construction Manager, separately and in writing, prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice directly to the Contractor, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

#### **§ 11.3 Waivers of Subrogation**

**§ 11.3.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their



subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

#### **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor, Architect, and Construction Manager for loss of use of the Owner's property, due to fire or other hazards however caused.

#### **§ 11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

### **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

#### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Construction Manager or Architect has not specifically requested to examine prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate.



If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

## **§ 12.2 Correction of Work**

### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.

**§ 12.2.2.2** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 12.2.2.3** The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

**§ 12.2.3** The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

**§ 12.2.4** The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, Separate Contractors, or other Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

**§ 12.2.5** Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

## **§ 12.3 Acceptance of Nonconforming Work**

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **ARTICLE 13 MISCELLANEOUS PROVISIONS**

### **§ 13.1 Governing Law**

The Contract shall be governed by the law of the place where the Project is located. The parties expressly agree that any claim, dispute or other controversy of any nature arising out of the Contract or performance of the Work shall be commenced and maintained in Supreme Court, Ulster County, or the United State District Court, Northern District of New York, if applicable.

**§ 13.1.2** The Contractor shall at all times observe and comply with all Federal and State Laws, and all Laws, Ordinances and Regulations of the Owner, in any manner affecting the work, and all such orders decreed as exist at present and those which may be enacted later, by bodies or tribunals having jurisdiction or authority over the Work,



and the Contractor shall defend, indemnify and save harmless the Owner, Construction Manager and Architect and all their officers, agents or servants against any claim or liability arising from, or based on, a violation of any such law, ordinances, regulation or order, whether by himself or by his employee or agents.

**§ 13.1.3** The Contractor specifically agrees as required by Labor Law, Sections 220 and 220-d, as amended that:

- .1 No laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing contracting or contracting to do the whole or any part of the work contemplated by the Contract, shall be permitted or required to work more than eight hours in one calendar day or more than five days in one week, except in the emergencies set forth in the Labor Law.
- .2 The wages paid for a legal day's work shall not be less than the prevailing rate of wages as defined by law, and
- .3 The minimum hourly rate of wages to be paid shall not be less than that stated in the Specifications, and any re-determination of the prevailing rate of wages after the Contract is approved shall be deemed to be incorporated herein by reference as of the effective date of re-determination and shall form a part of this Contract. The Labor Law provides that the Contract may be forfeited and no sum paid for any work done thereunder on a second conviction of willfully paying less than:
  - a. the stipulated wage scale as provided in Labor Law, Section 220, Sub-division 3, as amended; or
  - b. the stipulated minimum hourly wage scale as provided in Labor Law, 220-d, as amended.

**§ 13.1.4** The Contractor specifically agrees as required by the provisions of Labor Law, Section 220-e, as amended that:

- .1 In hiring of employees for the performance of work under this Contract or any subcontract hereunder or for the manufacture, sale, or distribution of materials, equipment or supplies, hereunder, no Contractor or Subcontractor nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex, or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates.
- .2 No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee under this Contract on account of race, creed, color, disability, sex, or national origin.
- .3 There may be deducted from the amount payable to the Contractor by the Owner under this Contract, a penalty of fifty dollars (\$50) for each person for each calendar day during which such a person was discriminated against or intimidated in violation of the provisions of the Contract, and
- .4 The provisions of this section covering every Contract for or on behalf of the Owner, the State or a municipality for the manufacture or sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

**§ 13.1.5** During the performance of this Contract, the Contractor agrees as follows:

- .1 The Contractor will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.
- .2 If directed to do so by the Owner or the State Commissioner of Human Rights, the Contractor will send to each labor union or representative of workers which with the Contractor has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commissioner of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses (1) through (6) (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish a written statement that such a labor union representative will not discriminate because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, or marital status, and that such labor union or representative will cooperate, within the limits of its legal contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses and that it consents and agrees that the recruitment, employment and the terms and conditions of employment under this Contract shall be in accordance with the purposes and provision of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a



- statement, the Contractor shall promptly notify the Owner and the State Commissioner of Human Rights of such failure or refusal.
- .3 If directed to do so by the Owner or the Commissioner of Human Rights, the Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commissioner of Human Rights setting forth the substance of provisions of clauses (1) and (2) and such provision of the State's law against discrimination as the State Commissioner of Human Rights shall determine.
  - .4 The Contractor will state in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.
  - .5 The Contractor will comply with the provisions of Sections 290-299 of the Executive Law, and with the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commissioner of Human Rights under these non-discrimination clauses and such section of the Executive Law, and will permit access to the Contractor's books, records, and accounts by the Owner, the State Commissioner of Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with the non-discrimination clauses and such sections of the Executive Law Civil Rights Law.
  - .6 This Contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commissioner of Human Rights that the Contractor has not complied with the non-discrimination clauses, and that the Contractor may be declared ineligible for future contracts made by or on behalf of the Owner, the State or a public authority or agency of the State, until the Contractor satisfies the State Commissioner of Human Rights that the Contractor has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such findings may be made by the State Commissioner of the Human Rights after conciliation efforts by the Commissioner have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commissioner, notice thereof has been given to the Contractor to be heard publicly in accordance with the Executive Law. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law, and
  - .7 The Contractor will include the provisions of clauses .1 through .6 in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor will take action in enforcing such provisions of such subcontract or purchase order as the State Commissioner of Human Rights or the Owner may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved or is threatened with litigation with a subcontractor or vendor as a result of such directions by the State Commissioner of Human Rights or the Owner, the Contractor shall promptly so notify the Owner and the Attorney General requesting the Attorney General to intervene and protect the interests of the State of New York.

### **§ 13.2 Successors and Assigns**

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

**§ 13.2.2** The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### **§ 13.3 Rights and Remedies**

**§ 13.3.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.



§ 13.3.2 No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### § 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § 13.5 Interest

Payments to Contractor, including any interest, shall be consistent with this Agreement and in accordance with New York State General Municipal Law Section 106-b.

### § 13.6 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law.

### 13.7 Equal Opportunity

§ 13.7.1 The Contractor shall maintain policies of employment as follows:

.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, or natural origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in



conspicuous places, available to employees and applicants for employment, notice setting forth the policies of non-discrimination.

.2 The Contractor and the Contractor's subcontractors shall, in all solicitations or advertisement for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

### **§ 13.8 Wage Rates**

**§ 13.8.1** The Contractor shall comply with Prevailing Wage Rates issued and periodically updated, by the New York State Department of Labor, for the location and duration of the Project.

## **ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **§ 14.1 Termination by the Contractor**

**§ 14.1.1** The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

*(Paragraph deleted)*

**§ 14.1.2** The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon thirty (30) days' notice to the Owner with reasonable opportunity to cure, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work properly executed.

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon thirty (30) additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

### **§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise breaches a material provision of the Contract Documents.
- .5 breaches any warranty made by the Contractor under or pursuant to the Contract Documents.
- .6 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all of the requirements of the Contract Documents."



**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work. The costs of finishing the Work include, without limitations, all reasonable attorney's fees incurred by the Owner, additional Architect/Engineering and Construction Manager costs, insurance, additional interest because of any delay in completing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner.

### **§ 14.3 Suspension by the Owner for Convenience**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and the Contract Time may be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. No adjustment shall be made to the extent:

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

### **§ 14.4 Termination by the Owner for Convenience**

**§ 14.4.1** Notwithstanding any other provision to the contrary in this Agreement, the Owner reserves the right at any time and in its absolute discretion to terminate the services of the Contractor and/or the Work for the Owner's convenience and without cause by giving written notice to the Contractor. This termination for the convenience of the Owner provision allows and authorizes the Owner to terminate this Agreement at any time and for any reason whatsoever. This right may be exercised by the Owner in its complete discretion.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In the case of such termination for the Owner's convenience, the Contractor shall be entitled to, and the Owner shall reimburse the Contractor for, an equitable portion of the Contractor's fee based on the portion of the Work properly completed before the effective date of termination. Contractor's entitlement to payment for all such work shall be predicated on its performance of such work in accordance with the Contract Documents as certified by the Architect and Construction Manager. Contractor shall be entitled to no other payment and waives any claim for damages.

## **ARTICLE 15 CLAIMS AND DISPUTES**

### **§ 15.1 Claims**

**§ 15.1.1 Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1



does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

### **§ 15.1.2 Time Limits on Claims**

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law.

#### **§ 15.1.2.1 Claims by the Contractor must be made by written notice in accordance with the following procedures.**

- .1 the Contractor may submit a claim concerning a matter properly noticed in accordance with the time requirements of this Contract set forth in paragraph 15.1.2 and elsewhere;
- .2 failure by the Contractor to furnish the required claim documentation within the time set forth above shall constitute waiver of the Contractor's right to compensation for such claim.
- .3 Contractor shall furnish three (3) certified copies of the required claim documentation. The claim documentation shall be complete when furnished. The evaluation of the Contractor's claim will be based, among other things, upon the Owner's Project Records and the Contractor's furnished claim documentation
- .4 claim documentation shall conform to Generally Accepted Accounting Principles and shall be in the following format:
  - a. general introduction;
  - b. general background discussion
  - c. issues
    - i. index of issues (listed numerically);
    - ii. for each issue:
      - (1) background
      - (2) chronology
      - (3) Contractor's position (reason for Owner's potential liability)
      - (4) supporting documentation of merit or entitlement
      - (5) supporting documentation of damages
      - (6) begin each issue on a new page
  - d. all critical path method schedules (as-planned, monthly updates, schedule revisions and as-built, along with computer disks of all schedules related to the claim;
  - e. productivity exhibits (if appropriate); and
  - f. summary of issues and damages.
- .5 supporting documentation of merit for each issue shall be cited by reference, photocopies or explanation. Supporting documentation may include, but shall not be limited to General Conditions, General Requirements, technical specifications, drawings, correspondence, conference notes, shop drawings and submittals, shop drawing logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary CPM schedules or time impact analyses, photographs, technical reports, requests for information, field instructions and all other related records necessary to support the Contractor's claim.
- .6 supporting documentation of damages for each issue shall be cited, photocopied or explained. Supporting documentation may include, but shall not be limited to, any or all documents related to the preparation and submission of the bid; certified, detailed labor records including labor distribution reports; material and equipment procurement records; construction equipment ownership, cost records or rental records; subcontractor or vendor files and cost records; service cost records; purchase orders; invoices; Project as-planned and as-built cost records; general ledger records; variance reports; accounting adjustment records, and any other accounting material necessary to support the Contractor's claims.
- .7 each copy of the claim documentation shall be certified by a responsible officer of the Contractor in accordance with the requirements of these Contract Documents.

### **§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the



Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

#### § 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

#### § 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. In the case of a continuing delay only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

#### § 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5)



advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

**§ 15.2.5** If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will render to the parties the Architect's written recommendation relative to the Claim, including any recommended change in the Contract Sum or Contract Time or both. If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to mediate.

**§ 15.2.7** In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.8** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

### **§ 15.3 Mediation**

**§ 15.3.1** Intentionally omitted.

**§ 15.3.2** The parties may endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. Mediation shall proceed in advance of binding dispute resolution proceedings.

**§ 15.3.3** Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

**§ 15.3.4** The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

*(Paragraphs deleted)*



# Additions and Deletions Report for AIA® Document A232® – 2019

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

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## PAGE 1

Reconstruction to  
Wallkill Senior High School  
John G. Borden Middle School  
Leptondale Elementary School  
Plattekill Elementary School  
Tt Project Number 17597-22001

...

Barone Construction Group Inc.  
23 New Paltz Road  
Highland, New York 12528

...

*(Name, legal status, and address)*

Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589

...

*(Name, legal status, and address)*

Tetra Tech Engineers, Architects & Landscape Architects, P.C.  
d/b/a Tetra Tech Architects & Engineers  
Cornell Business & Technology Park  
10 Brown Road  
Ithaca, New York 14850

## PAGE 3

**§ 1.1.1 The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. ~~Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or~~



~~proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding or proposal requirements. The Contract Documents include the Notice to Bidders, Instructions to Bidders, sample forms, and the Contractor's bid.~~

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**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

...

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within ~~fourteen~~ thirty (30) days of the Contractor's written request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

...

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' written notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

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**§ 2.3.4** If the employment of the Construction Manager or Architect terminates, the Owner shall employ a successor construction manager or architect ~~to whom the Contractor has no reasonable objection~~ and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

**§ 2.3.5** The Owner shall ~~furnish~~ furnish, upon written request, only, and as necessary to complete the work, surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to reasonably rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

...

**§ 2.3.7** ~~Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2. The Owner shall furnish the Contractor~~ <two (2)> copies of the Contract Documents, including one set to be used for the Project Record Drawings. The Contractor may purchase additional copies at the cost of reproduction, postage and handling.

...

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ~~ten-day~~ Five-day period after receipt of notice from the Owner to commence and continue correction of such



default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to review by the Construction Manager and prior approval of the Architect, and the Construction Manager or Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

#### **PAGE 7**

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has ~~visited the site, become generally familiar with local~~ carefully examined the Contract Documents and the site, and represents that the Contractor is thoroughly familiar with the nature and location of the Work, the site, the specific conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents and all matters which may in any way affect the Work or its performance. The Contractor further represents that as a result of such examinations and investigations, the Contractor thoroughly understands the Contract Documents and their intent and purpose, and is familiar with all applicable codes, ordinances, laws, regulations, and rules as they apply to the Work, and that the Contractor will abide by same. Claims for additional time or additional compensation as a result of the Contractor's failure to follow the foregoing procedure and to familiarize itself with all local conditions and the Contract Documents are waived and will not be permitted.

...

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims in writing as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

**§ 3.2.4.1** The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for evaluating and not responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

**§ 3.2.5** Where existing conditions are obscured or concealed from the Owner or Architect's view prior to the start of this Project's construction activities, portrayal of such conditions in the documents is based on reasonable implications and assumptions. The Owner and Architect do not imply or guarantee to the Contractor in any way that such portrayals in the Documents are accurate or true.

**§ 3.2.5.1** Physical investigations and testing of existing conditions were not undertaken by the Architect, unless so indicated in the Contract Documents.

**§3.2.5.2** The Contractor may submit written requests for information to the Architect to help facilitate the Contractor's performance of the contract. Prior to submitting each request for information, the Contractor shall first carefully study and compare the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, and prior Project correspondence and documentation to determine that the information to be requested is not reasonably obtainable from such sources.

**§ 3.2.5.3** Each request for information shall be submitted to the Architect, in writing, with a copy to the Construction Manager. Each request for information shall identify the specific sources which were reviewed by the Contractor in an



effort to determine the information requested, and a statement to the effect that the information being requested could not be determined from such sources.

**§ 3.2.5.4** The Contractor shall submit each request for information sufficiently in advance of the date by which such information is requested in order to allow the Architect sufficient time, in the Architect's professional judgment, to permit adequate review and response and to permit Contractor compliance with the latest construction schedule.

**§ 3.2.5.5** The Construction Manager shall maintain a log at the Project site that sequentially numbers and lists each request for information. This log shall contain the Drawings reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof. This log shall be reviewed at each Project meeting and the status of the requests for information shall be made part of the minutes of such meetings.

**§ 3.2.5.6** The Contractor shall reimburse the Owner amounts charged to the Owner by the Architect or Construction Manager for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner provided information, Contractor prepared Coordination Drawings, or prior Project correspondence or documentation.

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**§ 3.4.2.1** After the Contract has been executed, the Owner and Architect will consider requests for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 01 of the Specifications). By making requests for substitutions, the Contractor:

.1 represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;

.2 represents that it will provide the same warranty for the substitution as it would have provided for the product specified;

.3 certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be changed as a result of the substitution, except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution that subsequently become apparent; and

.4 shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

**§ 3.4.2.2** The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions for convenience after the period noted in Division 01 Section "Substitution Procedures" and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

...

**§ 3.5.1** The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, ~~except for those inherent in the quality of the Work the Contract Documents require or permit.~~ defects. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

...

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the ~~Contractor~~ Contractor, to the extent practicable, that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.



§ 3.6.1 The Owner is exempt from payment of Federal, State, local taxes, and from payment of sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not to be included in bids. This exemption does not, however, apply to tools, machinery, equipment, or other property leased by, or to the Contractor or a subcontractor; and the Contractor and its subcontractor shall be responsible for, and pay, any and all applicable taxes, including sales and compensating use taxes, on such leased tools, machinery, equipment or other property.

**PAGE 10**

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, assisted by The Owner, through the Construction Manager, shall secure and pay for the building permit, permit from the New York State Education Department. The Contractor shall secure and pay for all other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded, of and completion of the contract, which are legally required.

...

§ 3.7.2.1 The Contractor shall comply with all applicable New York State Department of Labor requirements, including the provision that every worker employed in performance of a public work contract shall be certified as having completed an OSHA 10-hour safety training course. The Contractor and Subcontractor shall be solely responsible for compliance with this requirement with respect to their employees. The Contractor's or Subcontractor's failure to comply with this requirement shall not transfer or in any way impose the responsible for worker safety upon the Owner or the Architect.

3.7.2.2 In accordance with New York State Labor Law Article 8, Section 220, subd. 3-a(a), the Contractor shall submit to the Owner within 30 days after issuance of Contractor's first payroll, and every 30 days thereafter, a transcript of the original payroll record, subscribed and affirmed as true under the penalties of perjury.

§ 3.7.3 If the Contractor performs Work knowing it to be or Subcontractor performs Work which it knows or should have known was contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

**§ 3.7.4 Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect in writing before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may submit a Claim as provided in Article 15.

...

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

.1 Contingency Allowances shall cover the direct cost to the Contractor and Subcontractors for labor, materials and equipment, including delivery, unloading, storage, handling and installation. They do not



include the Contractor's overhead and profit, including the costs of bonds, insurance, administration and supervision, which costs should be carried as part of the Contract Sum.

.2 The Architect shall create and process Allowance Access Authorizations for the Construction Manager and Owner's approval and execution in accordance with the Contract Documents.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2. Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.8.3 Refer to Division 01 Section "Allowances" for additional information.

§ 3.9.1 The Contractor shall employ and designate a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The superintendent shall be in attendance at the project site full time throughout the work, including completion of the punch list. The superintendent must speak the English language clearly.

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The Contractor shall maintain and make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required ~~submittals~~ submittals in good order and condition. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, and Owner, and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

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§ 3.12.11 The Contractor is required to provide all submittals for the Architect's review. All submittals are to be provided to the Architect by the Submittal deadlines noted in the Contract Documents. The Architect's review of Contractor's submittals will be limited to the time preceding the Submittal deadline and will consist of an examination of an initial submittal and 1 resubmittal[s]. The Owner is entitled to obtain reimbursement from the Contractor for amounts paid to the Architect for evaluation of additional resubmittals, and for evaluation of submittals for which the initial submission is received after the Submittal deadlines.

...

§ 3.13.3 The Contractor shall be responsible for enforcing **the Owner's security and access policies and procedures, the Owner's Code of Conduct, and** the following rules of conduct for its personnel and those of its subcontractors, sub-subcontractors, and suppliers at the Project site, and the Owner's Project Representative shall provide interpretations should a question arise if the rules of conduct are being adequately enforced by the Contractor:

- .1 No smoking or use of tobacco products.
- .2 No drinking of alcoholic beverages or use of controlled substances.
- .3 No working, or presence on site, under the influence of alcoholic beverages or controlled substances.
- .4 No use of indecent language or display of indecent images, publications or terms.
- .5 No use of radios or other entertainment devices.



- .6 No horseplay or dangerous behavior.
- .7 No firearms or other weapons.
- .8 No communication with staff or students.

§ 3.13.4 The Contractor shall require its personnel and those of its subcontractors, sub-subcontractors and suppliers to wear visible photo-identification badges acceptable to the Owner, at all times for identification and security purposes.

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§ 3.18.1 To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and each of their consultant's, officers, board members, agents, and employees from and against any suits, claims, damages, losses, or expenses, including but not limited to attorneys' fees, fees and litigation costs, arising out of or resulting from performance of the Work, provided that such suit, claim, damage, loss, or expense is attributable to any bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), any tangible property, including loss of use resulting therefrom, but only to the extent caused by the negligent acts or omissions of the Contractor, a in whole or in part by the act, omission, fault, breach of contract, breach of warranty or statutory violation of the Contractor, a subcontractor, or any person or entity directly or indirectly employed by them, or any person or entity for whose acts they may be liable or arises out of operation of law as a consequence of any act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts they any of the above may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.any of them has been negligent.

#### PAGE 15

§ 4.2.2.1 The Contractor shall reimburse the Owner for compensation paid to the Architect and/or Construction Manager for additional site visits made necessary by the fault, neglect, deficiencies in the work, or request of the Contractor.

#### PAGE 16

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other other, and the Owner, in writing about the rejection. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

...

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives. Architect will prepare, will prepare Change Orders, Construction Change Directives and Allowance Change Authorizations..

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§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret and decide matters concerning performance of the Contractor under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor



through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

...

**§ 5.2.1** Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, but no later than fourteen (14) days prior to the start of construction, shall notify furnish in writing to the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

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By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, ~~including~~ including, but not limited to, the responsibility for safety of the Subcontractor's Work, ~~that and obligations to defend and indemnify~~ the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

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**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect in writing and in detail of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

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**§ 7.1.4** The combined overhead and profit (for Contractor, subcontractors, suppliers, and contractors of a lower-tier) included in the total cost to the Owner for a change in the Work shall be as follows:

.1 Maximum combined overhead and profit, 15 percent of the cost.

.2 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.4.

.3 To facilitate checking of quotations for extras or credits, all proposals shall be accompanied by a complete itemization of costs including labor, materials, rental costs, and Subcontracts. Subcontracts shall be itemized also.

.4 The additional bond charges for the total change order, two percent (2%) of the cost shall also apply to Deduct Change orders.



A Change Order is a written instrument prepared by the ~~Construction Manager Architect~~ and signed by the Owner, Construction Manager,

...

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect, in coordination with the Construction Manager, and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

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- .3 Rental costs of machinery and equipment, exclusive of hand tools, tools and equipment normally encumbered to perform the work, whether rented from the Contractor or others; and
- .4 ~~Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and~~ Intentionally omitted.
- .5 Costs of supervision and field office personnel directly attributable to the change.
- .6 Overhead and profit mark-up shall include, but not be limited to, the following:
  - .1 home office expense;
  - .2 field office expense;
  - .3 supervision;
  - .4 project management & estimation; and
  - .5 small tools & equipment.

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§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

...

§ 8.3.3 ~~This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.~~ The Owner shall not be liable to the Contractor and/or any subcontractor for claims or damages of any nature caused by or arising out of delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the claims procedure set forth herein. Except to the extent, if any, expressly prohibited by law, the Contractor expressly agrees not to make and hereby waives any claim for damages for delay, including, but not limited to, those resulting from increased labor or material costs; directions given or not given by the Owner, Construction Manager or Architect, including scheduling and coordination of the Work; the Architect's preparation of drawings and specifications or review of shop drawings and requests for instruction(s); or, on account of any delay, obstruction or hindrance for any cause whatsoever by the Owner, Construction Manager, Architect, or any other contractor on the project, whether or not foreseeable or anticipated. The Contractor agrees that its sole right and remedy therefor shall be an extension of time, if appropriate.

**IT IS EMPHASIZED THAT NO MONETARY RECOVERY MAY BE OBTAINED BY THE CONTRACTOR FOR DELAY AGAINST THE OWNER, CONSTRUCTION MANAGER, OR ARCHITECT BASED ON ANY REASON AND THAT THE CONTRACTOR'S SOLE REMEDY, IF APPROPRIATE, IS ADDITIONAL TIME."**

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~~Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the~~ The Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported



by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

...

**§ 9.3.1.3** Until Substantial Completion, the Owner shall pay ninety-five percent (95%) of the amount due to the Contractor on account of progress payments.

**§ 9.3.1.4** When the work or major portions thereof as contemplated by the terms of the Contract are substantially complete, the Contractor shall submit to the Construction Manager and Architect a requisition for payment of the remaining amount of the Contract balance. Upon receipt of such requisition, the Owner shall approve and promptly pay the remaining amount of the Contract less two times the value of any remaining items to be completed and an amount necessary to satisfy any claims, liens or judgments against the Contractor, which have not been suitably discharged, as determined by the Architect in conjunction with the Construction Manager. Any claims, liens or judgments referred to in this clause shall pertain to the Project and shall be filed in accordance with the terms of the Contract, and applicable laws.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. The Owner shall have the right, at any time on reasonable notice to inspect materials and equipment which have been stored off the site in accordance with this paragraph.

**§ 9.3.2.1** Proof of insurance for items stored off site and copies of invoices are to be provided with Applications for Payment requesting payment for stored materials.

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- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents; or
- .8 failure of Contractor to provide executed supplementary bid forms, performance and payment bonds or a current Certificate of Insurance.

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#### **§ 9.7 Failure of Payment**

~~If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.~~Intentionally omitted.

...

**§ 9.8.1.1** No later than 14 days prior to the Contract-scheduled date of Substantial Completion, the Contractor shall issue a letter to the Architect and Construction Manager confirming their work is on schedule for Substantial



Completion by the contract specified date. No later than seven days after Contract-scheduled date of Substantial Completion (including authorized adjustments), the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. Absent the contractor letter confirming readiness of work, the Architect may elect to postpone the substantial completion inspection. If the Architect's inspection discloses any item which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine the actual date of Substantial Completion.

§ 9.8.1.2 The Architect will perform no more than one inspection to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections.

§ 9.8.3 Upon receipt of the list, Contractor's punchlist, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, Contractor's punchlist, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

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§ 9.8.6 In the event the Contractor does not achieve final completion within sixty (60) days after the date of Substantial Completion, allowing for any approved extensions of the Contract time, Contractor shall not be entitled to any further payment and Contractor agrees that such failure to complete the work within the time set forth above shall constitute a waiver of all claims by the Contractor to any money that may be due. This provision shall not operate as a waiver by the Owner of any claims or remedies of any nature against the Contractor arising out of the Contract.

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§ 9.10.6 If the Contractor is responsible for delays in the final completion and closeout beyond the contract specified time, the Owner shall be entitled to reimbursement from the Contractor for amounts paid by the Owner to subsequently extend the Electronic Submittal System (Submittal Exchange).

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If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

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§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor.



By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity. Intentionally omitted.

...

**§ 10.3.6** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

...

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed, including private entities performing Work at the site and exempt from the coverage on account of the number of employees or occupation, such entities shall maintain voluntary compensation coverage at the same limits specified for mandatory coverage for the duration of the Project;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees or persons or entities excluded by statute from the requirements of Clause 11.1.1.1, but required by the Clause;
- .3 Claims for damages because of bodily injury, occupational sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage; which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations;
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

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**§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage. **The limits of liability of the insurance required above shall be as follows:**

<u>.1</u>	<b>Commercial General Liability (CGL)</b>
	<b>Limits of Insurance not less than:</b>
	<b>\$1,000,000 Each Occurrence</b>
	<b>\$1,000,000 Personal &amp; Advertising Injury</b>



\$2,000,000 General Aggregate per project/location  
\$2,000,000 Products/Completed Operations Aggregate  
\$100,000 Fire Damage Legal Liability  
\$10,000 Medical Payments

- a. The CGL coverage shall contain a General Aggregate Limit, such General Aggregate shall apply separately to each project.
- b. CGL coverage shall be written on ISO Occurrence form CG 00 01 1093 or a substitute form providing equivalent coverage and shall cover liability arising from premises, operations, independent contractors, products-completed operations, and personal and advertising injury.
- c. Owner, Architect and their consultants, Owner's Representative, and all other parties required by Owner, shall be included as additional insureds on the Commercial General Liability, using ISO Additional Insureds Endorsement CG 20 10 11 85 or CG 2010 (10/93) and CG 20 3 7 (10/01) or CG2033 (10/01) and CG2037 (10/01) or an endorsement providing equivalent coverage to the additional insureds. This insurance for the additional insureds shall be as broad as the coverage provided for the named insured subcontractor. It shall apply as Primary and non-contributing Insurance before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the additional insured.
- d. Attached to each certificate of insurance shall be a copy of the additional Insured Endorsement address in c.) above.
- e. Contractor shall maintain Commercial General Liability coverage for itself and all additional insureds for the duration of the project and maintain Completed Operations coverage for itself and each additional insured for least 3 years after completion of the Work.

**.2** Automotive Liability

- a. Business Auto Liability with limits of at least \$1,000,000 each accident for bodily injury and/or property damage.
- b. Business Auto coverage must include coverage for liability arising out of all owned, leased, hired and non-owned automobiles.
- c. Owner and other parties required by the Owner, shall be included as additional insured on the auto policy on a primary and non-contributing basis.

**.3** Commercial Umbrella

- a. Umbrella limits must be at least a minimum of \$5,000,000 or available policy limits if policy limits are higher.
- b. Umbrella coverage must include as additional insureds all entities that are additional insureds all entities that are additional insureds on the Commercial General Liability Policy.
- c. Umbrella coverage for such additional insureds shall apply as primary and non-contributing before any other insurance or self-insurance, including other than the Commercial General Liability, Auto Liability and Employers Liability coverages maintained by the Contractor.
- d. Attached to each certificate of insurance shall be a copy of the Additional Insured Endorsement addressed in b.) and c.) above.

**.4** Workers Compensation and Employers Liability

- a. Employers Liability Insurance limits of at least \$500,000, each accident, \$500,000 for bodily injury by accident and \$500,000 each employee for injury by disease.
- b. Where applicable, U.S. Longshore and Harborworkers Compensation Act Endorsement shall be attached to the policy.
- c. Where applicable, the Maritime Coverage Endorsement shall be attached to the policy.

**.5** Environmental Impairment Liability (Pollution Insurance) (EIL)

- a. Contractors involved with the removal and/or abatement of pollutants (including but not limited to asbestos abatement contractors, lead abatement contractors, roofing contractors, tank removal contractors) are required to maintain a minimum of \$1,000,000 EIL coverage.
- b. Owner and all other parties required by the Owner, shall be included as additional insured



on the EIL policy on a primary and non-contributing basis.

- .6 Owners Contractors Protective Liability Insurance: A separate policy of insurance naming the Owner, Architect and the Construction Manager as the insureds. The original policy shall be submitted for retention by Owner. A copy shall be sent to the Architect through the Owner's Representative. Said separate policy shall be in the amounts of One Million Dollars (\$1,000,000) per occurrence, and in the aggregate of two million dollars (\$2,000,000) for bodily injury and property damage and shall provide coverage for the Owner, Architect and Owner's Representative, their agents, officers and employees, with respect to said work. Said policy shall provide that the coverage afforded thereby shall be primary coverage to the full limits of liability stated in the declarations, and if said Owner, Architect or Owner's Representative, their officers and employees have other insurance against the loss covered by said policy, that other insurance shall be excess insurance only. This coverage shall last for the duration of the contract.
- .7 Prior to commencing the Work, the Owner shall supply the Contractor and Owner's Representative with a certificate of insurance providing evidence of insurance coverage for the Contractor for Builder's Risk/Installation Floater "All Risk" insurance shall protect the Contractor, the Contractor's Subcontractors, the Architect and the Owner's Representative from losses resulting from, but not limited to, natural disasters, fire, extended coverage perils, vandalism, malicious mischief or collapse during the course of construction. The amount of such insurance shall be not less at any time than the total value of the Work in place, on site, in transit or in storage off site and the loss under such policies shall be made payable to the Owner and/or the Contractor or other insureds, as their respective interest may appear. The policy shall cover all property to be used in, or incidental to, the fabrication and/or erection and/or completion of the project. It shall include all materials, machinery, equipment and supplies intended to become part of such property and false work, temporary trestles and similar structures. It shall not include tools, Contractor's equipment and any other property not a part or destined to become part of the project. The Owner should be advised of the amount, if any, of a deductible amount exceed \$5,000,000. The Contractor shall provide the Owner upon request with copies of any of the insurance policies required to be maintained pursuant to this Article.
- .8 The amount of insurance contained in the aforementioned insurance coverages shall not be construed to be a limitation of the liability on the part of the Contractor or any of its subcontractors.
- .9 At the Owner's request, the Contractor shall provide a copy of the declaration page of the liability and umbrella/excess policies with a list of endorsements and forms. There will be no coverage restrictions and/or exclusions involving the New York State Labor Law statutes or gravity related injuries.
- .10 A fully completed New York Construction Certificate of Liability Insurance Addendum (ACORD 855 2014/15) must be included with the certificates of insurance. For any "Yes" answers on Items G through L on this Form— additional details must be provided in writing. Policy exclusions may not be accepted.

**§ 11.1.5 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

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**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during



that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5.

...

The Contract shall be governed by the law of the place where the Project is located ~~excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern~~ Section 15.4. located. The parties expressly agree that any claim, dispute or other controversy of any nature arising out of the Contract or performance of the Work shall be commenced and maintained in Supreme Court, Ulster County, or the United State District Court, Northern District of New York, if applicable.

**§ 13.1.2** The Contractor shall at all times observe and comply with all Federal and State Laws, and all Laws, Ordinances and Regulations of the Owner, in any manner affecting the work, and all such orders decreed as exist at present and those which may be enacted later, by bodies or tribunals having jurisdiction or authority over the Work, and the Contractor shall defend, indemnify and save harmless the Owner, Construction Manager and Architect and all their officers, agents or servants against any claim or liability arising from, or based on, a violation of any such law, ordinances, regulation or order, whether by himself or by his employee or agents.

**§ 13.1.3** The Contractor specifically agrees as required by Labor Law, Sections 220 and 220-d, as amended that:

- .1 No laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing contracting or contracting to do the whole or any part of the work contemplated by the Contract, shall be permitted or required to work more than eight hours in one calendar day or more than five days in one week, except in the emergencies set forth in the Labor Law.
- .2 The wages paid for a legal day's work shall not be less than the prevailing rate of wages as defined by law, and
- .3 The minimum hourly rate of wages to be paid shall not be less than that stated in the Specifications, and any re-determination of the prevailing rate of wages after the Contract is approved shall be deemed to be incorporated herein by reference as of the effective date of re-determination and shall form a part of this Contract. The Labor Law provides that the Contract may be forfeited and no sum paid for any work done thereunder on a second conviction of willfully paying less than:
  - a. the stipulated wage scale as provided in Labor Law, Section 220, Sub-division 3, as amended; or
  - b. the stipulated minimum hourly wage scale as provided in Labor Law, 220-d, as amended.

**§ 13.1.4** The Contractor specifically agrees as required by the provisions of Labor Law, Section 220-e, as amended that:

- .1 In hiring of employees for the performance of work under this Contract or any subcontract hereunder or for the manufacture, sale, or distribution of materials, equipment or supplies, hereunder, no Contractor or Subcontractor nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex, or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates.
- .2 No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee under this Contract on account of race, creed, color, disability, sex, or national origin.
- .3 There may be deducted from the amount payable to the Contractor by the Owner under this Contract, a penalty of fifty dollars (\$50) for each person for each calendar day during which such a person was discriminated against or intimidated in violation of the provisions of the Contract, and
- .4 The provisions of this section covering every Contract for or on behalf of the Owner, the State or a municipality for the manufacture or sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

**§ 13.1.5** During the performance of this Contract, the Contractor agrees as follows:

- .1 The Contractor will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.



- .2 If directed to do so by the Owner or the State Commissioner of Human Rights, the Contractor will send to each labor union or representative of workers which with the Contractor has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commissioner of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses (1) through (6) (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negation of this Contract, the Contractor shall request such labor union or representative to furnish a written statement that such a labor union representative will not discriminate because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, or marital status, and that such labor union or representative will cooperate, within the limits of its legal contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses and that it consents and agrees that the recruitment, employment and the terms and conditions of employment under this Contract shall be in accordance with the purposes and provision of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the Owner and the State Commissioner of Human Rights of such failure or refusal.
- .3 If directed to do so by the Owner or the Commissioner of Human Rights, the Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commissioner of Human Rights setting forth the substance of provisions of clauses (1) and (2) and such provision of the State's law against discrimination as the State Commissioner of Human Rights shall determine.
- .4 The Contractor will state in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of age, race, creed, color, national origin, sexual orientation, military status, sex, disability, predisposing genetic characteristics, marital status, or domestic violence victim status.
- .5 The Contractor will comply with the provisions of Sections 290-299 of the Executive Law, and with the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commissioner of Human Rights under these non-discrimination clauses and such section of the Executive Law, and will permit access to the Contractor's books, records, and accounts by the Owner, the State Commissioner of Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with the non-discrimination clauses and such sections of the Executive Law Civil Rights Law.
- .6 This Contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commissioner of Human Rights that the Contractor has not complied with the non-discrimination clauses, and that the Contractor may be declared ineligible for future contracts made by or on behalf of the Owner, the State or a public authority or agency of the State, until the Contractor satisfies the State Commissioner of Human Rights that the Contractor has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such findings may be made by the State Commissioner of the Human Rights after conciliation efforts by the Commissioner have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commissioner, notice thereof has been given to the Contractor to be heard publicly in accordance with the Executive Law. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law, and
- .7 The Contractor will include the provisions of clauses .1 through .6 in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor will take action in enforcing such provisions of such subcontract or purchase order as the State Commissioner of Human Rights or the Owner may direct, including sanctions or remedies for non-compliance. If the Contractor becomes involved or is threatened with litigation with a subcontractor or vendor as a result of such directions by the State Commissioner of Human Rights or the Owner, the Contractor shall promptly so notify the Owner and the Attorney General requesting the Attorney General to intervene and protect the interests of the State of New York.

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Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where



the Project is located to Contractor, including any interest, shall be consistent with this Agreement and in accordance with New York State General Municipal Law Section 106-b.

### **§ 13.6 Time Limits on Claims**

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law.

### **13.7 Equal Opportunity**

**§ 13.7.1** The Contractor shall maintain policies of employment as follows:

.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, or natural origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice setting forth the policies of non-discrimination.

.2 The Contractor and the Contractor's subcontractors shall, in all solicitations or advertisement for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

### **§ 13.8 Wage Rates**

**§ 13.8.1** The Contractor shall comply with Prevailing Wage Rates issued and periodically updated, by the New York State Department of Labor, for the location and duration of the Project.

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.4 — The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

**§ 14.1.2** The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the ~~Work~~, Work under direct or indirect contract with the Contractor, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon ~~seven-thirty (30)~~ seven-thirty (30) days' notice to the ~~Owner~~, Owner with reasonable opportunity to cure, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work ~~executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination properly executed.~~

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon ~~seven-thirty (30)~~ seven-thirty (30) additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

...

**.1** ~~repeatedly~~ refuses or fails to supply enough properly skilled workers or proper materials;

...

**.3** ~~repeatedly~~ disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or



- ~~4 otherwise is guilty of substantial breach of a provision of the Contract Documents; breaches a material provision of the Contract Documents.~~
- ~~.5 breaches any warranty made by the Contractor under or pursuant to the Contract Documents.~~
- ~~.6 fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all of the requirements of the Contract Documents."~~

~~§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, after consultation with the Construction Manager, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:~~

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- ~~.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work. The costs of finishing the Work include, without limitations, all reasonable attorney's fees incurred by the Owner, additional Architect/Engineering and Construction Manager costs, insurance, additional interest because of any delay in completing the Work.~~

...

~~§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.~~

...

~~§ 14.3.2 The Contract Sum and the Contract Time shall may be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:~~

...

~~§ 14.4.1 The Owner may, at any time, terminate the Contract. Notwithstanding any other provision to the contrary in this Agreement, the Owner reserves the right at any time and in its absolute discretion to terminate the services of the Contractor and/or the Work for the Owner's convenience and without cause. cause by giving written notice to the Contractor. This termination for the convenience of the Owner provision allows and authorizes the Owner to terminate this Agreement at any time and for any reason whatsoever. This right may be exercised by the Owner in its complete discretion.~~

...

~~§ 14.4.3 In the case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement. the Contractor shall be entitled to, and the Owner shall reimburse the Contractor for, an equitable portion of the Contractor's fee based on the portion of the Work properly completed before the effective date of termination. Contractor's entitlement to payment for all such work shall be predicated on its performance of such work in accordance with the Contract Documents as certified by the Architect and Construction Manager. Contractor shall be entitled to no other payment and waives any claim for damages.~~

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The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law;



but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.law.

**§ 15.1.2.1** Claims by the Contractor must be made by written notice in accordance with the following procedures.

- .1 the Contractor may submit a claim concerning a matter properly noticed in accordance with the time requirements of this Contract set forth in paragraph 15.1.2 and elsewhere;
- .2 failure by the Contractor to furnish the required claim documentation within the time set forth above shall constitute waiver of the Contractor's right to compensation for such claim.
- .3 Contractor shall furnish three (3) certified copies of the required claim documentation. The claim documentation shall be complete when furnished. The evaluation of the Contractor's claim will be based, among other things, upon the Owner's Project Records and the Contractor's furnished claim documentation
- .4 claim documentation shall conform to Generally Accepted Accounting Principles and shall be in the following format:
  - a. general introduction;
  - b. general background discussion
  - c. issues
    - i. index of issues (listed numerically);
    - ii. for each issue:
      - (1) background
      - (2) chronology
      - (3) Contractor's position (reason for Owner's potential liability)
      - (4) supporting documentation of merit or entitlement
      - (5) supporting documentation of damages
      - (6) begin each issue on a new page
  - d. all critical path method schedules (as-planned, monthly updates, schedule revisions and as-built, along with computer disks of all schedules related to the claim;
  - e. productivity exhibits (if appropriate); and
  - f. summary of issues and damages.
- .5 supporting documentation of merit for each issue shall be cited by reference, photocopies or explanation. Supporting documentation may include, but shall not be limited to General Conditions, General Requirements, technical specifications, drawings, correspondence, conference notes, shop drawings and submittals, shop drawing logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary CPM schedules or time impact analyses, photographs, technical reports, requests for information, field instructions and all other related records necessary to support the Contractor's claim.
- .6 supporting documentation of damages for each issue shall be cited, photocopied or explained. Supporting documentation may include, but shall not be limited to, any or all documents related to the preparation and submission of the bid; certified, detailed labor records including labor distribution reports; material and equipment procurement records; construction equipment ownership, cost records or rental records; subcontractor or vendor files and cost records; service cost records; purchase orders; invoices; Project as-planned and as-built cost records; general ledger records; variance reports; accounting adjustment records, and any other accounting material necessary to support the Contractor's claims.
- .7 each copy of the claim documentation shall be certified by a responsible officer of the Contractor in accordance with the requirements of these Contract Documents.

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**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

...



§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. ~~The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work.~~ In the case of a continuing delay only one Claim is necessary.

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§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any ~~If a Claim has not been resolved after consideration of the foregoing and of further evidence presented by the parties or requested by the Architect, the Architect will render to the parties the Architect's written recommendation relative to the Claim, including any recommended change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.~~ If there is a surety and there appears to be a possibility of a Contractor's default, the Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

...

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days of receipt thereof, then both parties waive their rights to ~~mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~ mediate.

...

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution. Intentionally omitted.

§ 15.3.2 The parties ~~shall~~ may endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. ~~The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation~~ Mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. ~~If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.~~

...

## § 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.



**§ 15.4.2** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

**§ 15.4.3** The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

**§ 15.4.4 Consolidation or Joinder**

**§ 15.4.4.1** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

**§ 15.4.4.2** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

**§ 15.4.4.3** The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.



## ***Certification of Document's Authenticity***

### ***AIA® Document D401™ – 2003***

I, Kim Ruebel, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 10:05:58 ET on 02/16/2023 under Order No. 3104237909 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A232™ – 2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, other than those additions and deletions shown in the associated Additions and Deletions Report.

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*(Signed)*

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*(Title)*

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*(Dated)*





Kathy Hochul, Governor

Roberta Reardon, Commissioner

Wallkill Central School District  
Thomas Farlow, Project Manager  
Tetra Tech Archs & Engs  
Ithaca NY 14850

Schedule Year 2022 through 2023  
Date Requested 11/01/2022  
PRC# 2022012296

Location 1500 Route 208  
Project ID# 17597-22001  
Project Type Reconstruction to High School, JB Middle School, Leptondale, Ostrander and Plattekill ES

### PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2022 through June 2023. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website [www.labor.ny.gov](http://www.labor.ny.gov). Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

#### NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: \_\_\_\_\_ Date Cancelled: \_\_\_\_\_

Name & Title of Representative: \_\_\_\_\_

Phone: (518) 457-5589 Fax: (518) 485-1870  
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240







# **General Provisions of Laws Covering Workers on Article 8 Public Work Contracts**

## **Introduction**

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

## **Responsibilities of the Department of Jurisdiction**

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission; a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion [online](#).

## **Hours**

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the ["Request for a dispensation to work overtime" form \(PW30\)](#) and ["4 Day / 10 Hour Work Schedule" form \(PW 30.1\)](#).

## **Wages and Supplements**

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website [www.labor.ny.gov](http://www.labor.ny.gov).

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website [www.labor.ny.gov](http://www.labor.ny.gov).

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website [www.labor.ny.gov](http://www.labor.ny.gov).

## **Payrolls and Payroll Records**

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid



or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment. Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed \$100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds \$25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

### **Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties**

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

### **Withholding of Payments**

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

### **Summary of Notice Posting Requirements**

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.



The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers' compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

## **Apprentices**

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12240 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

## **Interest and Penalties**

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

## **Debarment**

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

## **Criminal Sanctions**

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

## **Discrimination**

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).



No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b) ).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of \$50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c) ).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d) ).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

## **Workers' Compensation**

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

## **Unemployment Insurance**

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.





Kathy Hochul, Governor

Roberta Reardon, Commissioner

Walkill Central School Distric  
Thomas Farlow, Project Manager  
Tetra Tech Archs & Engs  
Ithaca NY 14850

Schedule Year 2022 through 2023  
Date Requested 11/01/2022  
PRC# 2022012296

Location 1500 Route 208  
Project ID# 17597-22001  
Project Type Reconstruction to High School, JB Middle School, Leptondale, Ostrander and Plattekill ES

### Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

### Contractor Information

All information must be supplied

Federal Employer Identification Number: _____		
Name: _____		
Address: _____ _____		
City: _____	State: _____	Zip: _____
Amount of Contract: \$ _____	Contract Type:	
Approximate Starting Date: ____/____/____	<input type="checkbox"/> (01) General Construction	
Approximate Completion Date: ____/____/____	<input type="checkbox"/> (02) Heating/Ventilation	
	<input type="checkbox"/> (03) Electrical	
	<input type="checkbox"/> (04) Plumbing	
	<input type="checkbox"/> (05) Other : _____	

Phone: (518) 457-5589 Fax: (518) 485-1870  
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240







### **Social Security Numbers on Certified Payrolls:**

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

### **Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d**

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to \$1,500 for a first offense and up to \$5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, <https://dol.ny.gov/public-work-and-prevailing-wage>

If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: [dol.misclassified@labor.ny.gov](mailto:dol.misclassified@labor.ny.gov) .

### **Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)**

#### **Effective June 23, 2020**

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub*\*. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website [www.labor.ny.gov](http://www.labor.ny.gov) or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. \*In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.



**To all State Departments, Agency Heads and Public Benefit Corporations  
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

## **Budget Policy & Reporting Manual**

# **B-610**

### **Public Work Enforcement Fund**

*effective date December 7, 2005*

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#### **1. Purpose and Scope:**

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

#### **2. Background and Statutory References:**

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

#### **3. Procedures and Agency Responsibilities:**

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.



**To all State Departments, Agency Heads and Public Benefit Corporations**  
**IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND**

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor  
Administrative Finance Bureau-PWEF Unit  
Building 12, Room 464  
State Office Campus  
Albany, NY 12240

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.









Required Notice under Article 25-B of the Labor Law

**Attention All Employees, Contractors and Subcontractors:  
You are Covered by the Construction Industry Fair Play Act**

**The law says that you are an employee unless:**

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

**It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.**

**Employee Rights:** If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

**Independent Contractors:** If you are an independent contractor, **you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

**Penalties** for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty**
  - First offense: Up to \$2,500 per employee
  - Subsequent offense(s): Up to \$5,000 per employee
- **Criminal Penalty**
  - First offense: Misdemeanor - up to 30 days in jail, up to a \$25,000 fine and debarment from performing public work for up to one year.
  - Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a \$50,000 fine and debarment from performing public work for up to 5 years.

**If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to [dol.misclassified@labor.ny.gov](mailto:dol.misclassified@labor.ny.gov). All complaints of fraud and violations are taken seriously. You can remain anonymous.**

**Employer Name:**

IA 999 (09/16)







# Attention Employees

## THIS IS A: **PUBLIC WORK PROJECT**

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Chapter 629 of  
the Labor Laws  
of 2007:

**These wages are set by law and must be posted at the work site. They can also be found at:**

<https://dol.ny.gov/public-work-and-prevailing-wage>

If you feel that you have not received proper wages or benefits,  
please call our nearest office.\*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

\* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or [www.comptroller.nyc.gov](http://www.comptroller.nyc.gov) – click on Bureau of Labor Law.

Contractor Name: \_\_\_\_\_

Project Location: \_\_\_\_\_







## Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is \$250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training "prior to the performing any work on the project."

### The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.*)
- Training roster, attendance record or other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

\*\*A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

## WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is \$3 million in Bronx, Kings, New York, Queens and, Richmond counties; \$1.5 million in Nassau, Suffolk and Westchester counties; and \$500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirements on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)



## Introduction to the Prevailing Rate Schedule

### Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

#### Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

#### Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

#### Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

#### Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

#### Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

#### Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website ([www.labor.ny.gov](http://www.labor.ny.gov)) for current wage rate information.

#### Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.



Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor  
Bureau of Public Work  
State Office Campus, Bldg. 12  
Albany, NY 12240

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870



## Ulster County General Construction

### Boilermaker

11/01/2022

**JOB DESCRIPTION** Boilermaker

**DISTRICT** 4

#### ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

#### WAGES

Per Hour: 07/01/2022

Boilermaker	\$ 63.38
Repairs & Renovations	63.38

#### SUPPLEMENTAL BENEFITS

Per Hour:

Boilermaker	32% of hourly
Repair & Renovations	Wage Paid
	+ \$ 25.38

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

#### OVERTIME PAY

See (D, O) on OVERTIME PAGE

Repairs & Renovation see (B,E,Q)

#### HOLIDAY

Paid: See (8, 16, 23, 24) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 12, 15, 16, 22, 23, 24, 25) on HOLIDAY PAGE

NOTE: \*Employee must work in pay week to receive Holiday Pay.

\*\*Employee gets 4 times the hourly wage rate for working Labor Day.

#### REGISTERED APPRENTICES

Wage per hour:

(1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	32% of Hourly
	Wage Paid Plus
	Amount Below

1st Term	\$ 19.41
2nd Term	20.26
3rd Term	21.11
4th Term	21.96
5th Term	22.82
6th Term	23.68
7th Term	24.52

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

### Carpenter - Building / Heavy&Highway

11/01/2022

**JOB DESCRIPTION** Carpenter - Building / Heavy&Highway

**DISTRICT** 2

#### ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

#### PARTIAL COUNTIES



Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

### WAGES

Wages per hour:	07/01/2022	07/01/2023 Additional	07/01/2024 Additional
Carpenter - ONLY for Artificial Turf/Synthetic Sport Surface	\$ 33.08	\$ 2.25*	\$2.25*

\*To be allocated at a later date

Note - Does not include the operation of equipment. Please see Operating Engineers rates.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 25.45

### OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

### HOLIDAY

Paid: See (5) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

Notes:

When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. When a holiday falls upon a Sunday, it shall be observed on the following Monday.

An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

### REGISTERED APPRENTICES

Wages per hour (1300 hour terms at the following percentage of Journeyman's wage):

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour:

1st term	\$ 16.97
2nd term	17.41
3rd term	19.40
4th term	19.84

2-42AtSS

### Carpenter - Building / Heavy&Highway

11/01/2022

**JOB DESCRIPTION** Carpenter - Building / Heavy&Highway

**DISTRICT** 11

### ENTIRE COUNTIES

Columbia, Dutchess, Orange, Sullivan, Ulster

### WAGES

WAGES (per hour)

Applies to Carpenter (Building/Heavy & Highway/Tunnel), Dockbuilder, Piledriver, Dive Tender, and Diver (Dry):

	07/01/2022	07/01/2023 Additional	07/01/2024 Additional	07/01/2025 Additional
Base Wage	\$ 34.68 + 4.80*	\$ 2.10**	\$ 2.16**	\$ 2.23**
Applies to Diver (Wet):				
Base Wage	\$ 50.00 + 4.80*	2.10**	2.16**	2.23**

\*For all hours paid straight or premium.

\*\*To be allocated at a later date.

SHIFT DIFFERENTIAL: When mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of the base wage.

### SUPPLEMENTAL BENEFITS



Per hour:

Journeyworker \$ 30.41

**OVERTIME PAY**

See (B, E, Q) on OVERTIME PAGE

**HOLIDAY**

BUILDING:

Paid: See ( 1 ) on HOLIDAY PAGE.

Overtime: See ( 5, 6, 16, 25 ) on HOLIDAY PAGE.

- Holidays that fall on Sunday will be observed Monday.

HEAVY&HIGHWAY/TUNNEL:

Paid: See ( 5, 6, 25 ) on HOLIDAY PAGE

Overtime: See ( 5, 6 ) on HOLIDAY PAGE

- Holidays that fall on Sunday will be observed Monday

- Must be employed during the five (5) work days immediately preceding a holiday or during the five (5) work days following the paid holiday to receive holiday pay

- If Employee is entitled to a paid holiday, the Employee is paid the Holiday wage and supplemental benefits whether they work or not. If Employee works the Holiday, the Employee will receive holiday pay (including supplemental benefits), plus the applicable premium wage for working the Holiday. If Employee works in excess of 8 hours on Holiday, then benefits will be paid for any hours in excess of 8 hours.

**REGISTERED APPRENTICES**

1 Year terms at the following wage rates.

	1st	2nd	3rd	4th	5th
07/01/2022	\$ 17.34	\$ 20.81	\$ 22.54	\$ 24.28	\$ 27.74
	+2.57*	+2.57*	+2.57*	+2.57*	+2.57*

\*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

Apprentices (all terms)

07/01/2022 \$ 16.33

11-279.2B/H&H

**Carpenter - Floor Coverer**

**11/01/2022**

**JOB DESCRIPTION** Carpenter - Floor Coverer

**DISTRICT** 11

**ENTIRE COUNTIES**

Columbia, Sullivan, Ulster

**PARTIAL COUNTIES**

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

**WAGES**

WAGES:(per hour)

	07/01/2022	07/01/2023	07/01/2024
		Additional	Additional
Carpet/Resilient Floor Coverer	\$ 34.68	\$ 2.10**	\$ 2.16**
	+4.80*		

\* For all hours paid straight or premium

\*\* To be allocated at a later date.

SHIFT DIFFERENTIAL: When mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen (15) percent of wage plus applicable benefits.

**SUPPLEMENTAL BENEFITS**

Per hour:

Journey worker \$ 30.41

**OVERTIME PAY**

See (B, E, Q) on OVERTIME PAGE

**HOLIDAY**

BUILDING:

Paid: See ( 1 ) on HOLIDAY PAGE.



Overtime: See ( 5, 6, 16, 25 ) on HOLIDAY PAGE.  
- Holidays that fall on Sunday will be observed Monday.

**HEAVY&HIGHWAY/TUNNEL:**

Paid: See ( 5, 6, 25 ) on HOLIDAY PAGE  
Overtime: See ( 5, 6 ) on HOLIDAY PAGE

- Holidays that fall on Sunday will be observed Monday

- Must be employed during the five (5) work days immediately preceding a holiday or during the five (5) work days following the paid holiday to receive holiday pay

- If Employee is entitled to a paid holiday, the Employee is paid the Holiday wage and supplemental benefits whether they work or not. If Employee works the Holiday, the Employee will receive holiday pay (including supplemental benefits), plus the applicable premium wage for working the Holiday. If Employee works in excess of 8 hours on Holiday, then benefits will be paid for any hours in excess of 8 hours.

**REGISTERED APPRENTICES**

1 Year terms at the following wage rates.

1st	2nd	3rd	4th	5th
\$ 17.34	\$ 20.81	\$ 22.54	\$ 24.28	\$ 27.74
+2.57*	+2.57*	+2.57*	+2.57*	+2.57*

\*For all hours paid straight or premium

**SUPPLEMENTAL BENEFITS per hour:**

All terms \$ 16.33

11-279.2Floor

**Electrician**

**11/01/2022**

**JOB DESCRIPTION** Electrician

**DISTRICT 11**

**ENTIRE COUNTIES**

Sullivan, Ulster

**PARTIAL COUNTIES**

Delaware: Only in the Townships of Andes, Harpersfield, Kortwright, Stamford, Bovina, Roxbury, Middletown and those portions of Colchester and Hancock south of the East Branch of the Delaware River.

Dutchess: All of the county except for the towns of Fishkill, East Fishkill, and Beacon.

Greene: That portion of the county south of a line following the south limits of the city of Catskill in a Westerly direction from the Hudson River to Highway 23A along 23A to the road following the Little Westkill and continuing along this road to Delaware County.

**WAGES**

Per hour:

Electrician Wireman/ Technician Electrical/Technician Projects under \$ 250,000.00	07/01/2022	04/01/2023	04/01/2024
	\$ 44.00	\$ 45.50	\$ 46.50
	+ 9.00*	+ 9.00*	+ 9.50*
over \$ 250,000.00	\$ 48.00	\$ 49.50	\$ 50.50
	+ 9.00*	+ 9.00*	+ 9.50*

**SHIFT DIFFERENTIAL:** On Public Work in New York State when shift work is mandated either in the job specifications or by the contracting agency, the following rates apply:

Shift worked between 4:30pm & 12:30am

Electrical/Technician Projects

under \$ 250,000.00	\$ 51.62	\$ 53.39	\$ 54.56
	+ 9.00*	+ 9.00*	+ 9.50*
over \$ 250,000.00	\$ 56.32	\$ 58.08	\$ 59.30
	+ 9.00*	+ 9.00*	+ 9.50*

Shift worked between 12:30am & 8:30am

Electrical/Technician Projects

under \$ 250,000.00	\$ 57.83	\$ 59.81	\$ 61.12
	+ 9.00*	+ 9.00*	+ 9.50*
over \$ 250,000.00	\$ 63.09	\$ 65.06	\$ 66.35
	+ 9.00*	+ 9.00*	+ 9.50*

\*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (subject to overtime premiums):



- On jobs where employees are required to work from boatswain chairs, swinging scaffolds, etc., forty (40) feet or more above the ground, or under compressed air, using Scottair packs, or gas masks, they shall receive an additional \$2.00 per hour above the regular straight time rate.
- Journeyman Wireman working in Shafts, Tunnels or on Barges: \$5.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman when performing welding or cable splicing: \$3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a NYS Asbestos Certificate: \$3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a CDL: \$3.00 above the Journeyman Wireman rate of pay.

#### SUPPLEMENTAL BENEFITS

Per hour:	07/01/2022	04/01/2023	04/01/2024
Journeyman	\$ 27.68 plus 3% of straight or premium wage	\$ 28.68 plus 3% of straight or premium wage	\$ 29.68 plus 3% of straight or premium wage

#### OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

#### HOLIDAY

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 13, 15, 16, 25) on HOLIDAY PAGE

When the holiday falls on a Saturday it is observed the Friday before. When the holiday falls on a Sunday it is observed on the Monday after.

#### REGISTERED APPRENTICES

WAGES:

(1)year terms at the following rates

07/01/2022	1st	2nd	3rd	4th	5th	6th
1st Shift	\$ 13.80	\$ 18.40	\$ 23.00	\$ 27.60	\$ 32.20	\$ 34.50
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
2nd Shift	16.19	21.59	26.99	32.38	37.78	40.48
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
3rd Shift	18.14	24.18	30.23	36.28	42.32	45.35
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
04/01/2023	1st	2nd	3rd	4th	5th	6th
1st Shift	\$ 14.25	\$ 19.00	\$ 23.75	\$ 28.50	\$ 33.25	\$ 35.63
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
2nd Shift	16.72	22.29	27.87	33.44	39.01	41.80
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
3rd Shift	18.73	24.97	31.22	37.46	43.70	46.83
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
04/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	\$ 14.55	\$ 19.40	\$ 24.25	\$ 29.10	\$ 33.95	\$ 36.38
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
2nd Shift	17.08	22.77	28.47	34.16	39.85	42.70
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
3rd Shift	19.12	25.49	31.87	38.24	44.61	47.80
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
09/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	\$ 14.55	\$ 19.40	\$ 24.25	\$ 29.10	\$ 33.95	\$ 36.38
	+0.50*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
2nd Shift	17.08	22.77	28.47	34.16	39.85	42.70
	+0.50*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
3rd Shift	19.12	25.49	31.87	38.24	44.61	47.80
	+0.50*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*

\*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

SUPPLEMENTAL BENEFITS per hour:

07/01/2022

1st term	\$ 15.31 plus 3% of straight or premium wage
2nd term	\$ 15.81 plus 3% of straight or premium wage
3rd term	\$ 17.31 plus 3% of straight or premium wage
4th term	\$ 18.31 plus 3% of straight or premium wage
5th term	\$ 19.81 plus 3% of straight or premium wage
6th term	\$ 19.81 plus 3% of straight or premium wage



09/01/2022

1st term	\$ 16.28 plus 3% of straight or premium wage
2nd term	\$ 16.28 plus 3% of straight or premium wage
3rd term	\$ 18.28 plus 3% of straight or premium wage
4th term	\$ 18.78 plus 3% of straight or premium wage
5th term	\$ 20.28 plus 3% of straight or premium wage
6th term	\$ 20.28 plus 3% of straight or premium wage

09/01/2024

1st term	\$ 16.28 plus 3% of straight or premium wage
2nd term	\$ 17.78 plus 3% of straight or premium wage
3rd term	\$ 18.78 plus 3% of straight or premium wage
4th term	\$ 19.78 plus 3% of straight or premium wage
5th term	\$ 21.28 plus 3% of straight or premium wage
6th term	\$ 21.28 plus 3% of straight or premium wage

11-363/2

## Elevator Constructor

11/01/2022

**JOB DESCRIPTION** Elevator Constructor

**DISTRICT** 1

### ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

### PARTIAL COUNTIES

Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford

Rockland: Only the Township of Stony Point.

Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

### WAGES

Per Hour	07/01/2022	01/01/2023
Mechanic	\$ 64.63	\$ 67.35
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

Four (4), ten (10) hour days may be worked for New Construction and Modernization Work at straight time during a week, Monday thru Thursday or Tuesday thru Friday.

\*\*\*Four (4), ten (10) hour days are not permitted for Contract Work/Repair Work

NOTE - In order to use the '4 Day/10 Hour Work Schedule' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule', form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

### SUPPLEMENTAL BENEFITS

Per hour	07/01/2022	01/01/2023
Journeyman/Helper	\$ 36.885*	\$ 37.335*

(\*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

### OVERTIME PAY

See (D, O) on OVERTIME PAGE

### HOLIDAY

Paid: See (5, 6, 15, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

### REGISTERED APPRENTICES

Wages per hour:

0-6 mo*	6-12 mo	2nd yr	3rd yr	4th yr
50 %	55 %	65 %	70 %	80 %

(\*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:



Same as Journeyperson/Helper

1-138

<b>Glazier</b>	<b>11/01/2022</b>
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**JOB DESCRIPTION** Glazier

**DISTRICT 8**

**ENTIRE COUNTIES**

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

**WAGES**

Per hour:	7/01/2022	11/01/2022
Glazier	\$ 59.59	\$ 60.34
*Scaffolding	61.55	62.55
Glass Tinting & Window Film	30.11	30.11
**Repair & Maintenance	30.11	30.11

\*Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

\*\*Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative contract value is under \$148,837. All Glass tinting, window film, regardless of material or intended use, and all affixing of decals to windows or glass.

**SUPPLEMENTAL BENEFITS**

Per hour:	7/01/2022	11/01/2022
Journeyworker	\$ 37.55	\$ 38.05
Glass tinting & Window Film	22.01	22.01
Repair & Maintenance	22.01	22.01

**OVERTIME PAY**

See (B,H,V) on OVERTIME PAGE.

For 'Repair & Maintenance' and 'Glass Tinting & Window Film' see (B, B2, I, S) on overtime page.

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE

Overtime: See (4, 6, 16, 25) on HOLIDAY PAGE

For 'Repair & Maintenance' and 'Glass Tinting & Window Film' Only

Paid: See(5, 6, 16, 25)

Overtime: See(5, 6, 16, 25)

**REGISTERED APPRENTICES**

Wage per hour:

(1) year terms at the following wage rates:

	7/01/2022	11/01/2022
1st term	\$ 21.15	\$ 21.45
2nd term	29.07	29.45
3rd term	35.20	35.65
4th term	47.38	47.98

Supplemental Benefits:

(Per hour)

1st term	\$ 17.15	\$ 17.35
2nd term	24.42	24.67
3rd term	27.06	27.36
4th term	32.15	32.55

8-1087 (DC9 NYC)

<b>Insulator - Heat &amp; Frost</b>	<b>11/01/2022</b>
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**JOB DESCRIPTION** Insulator - Heat & Frost

**DISTRICT 1**



## ENTIRE COUNTIES

Albany, Columbia, Delaware, Essex, Fulton, Greene, Hamilton, Montgomery, Rensselaer, Saratoga, Schenectady, Schoharie, Sullivan, Ulster, Warren, Washington

## WAGES

Wages per hour	07/01/2022	05/01/2023 Additional	05/01/2024 Additional
Asbestos Worker*	\$ 38.40	+\$2.50	+\$2.00
Insulator*	38.40		
Firestopping Worker*	32.64		

(\*)On Mechanical Systems only.

On government mandated shift work additional 12% of wage for all shifts starting after 3:30 P.M.

## SUPPLEMENTAL BENEFITS

Per hour

Journey person \$ 24.42

## OVERTIME PAY

See (\*B1, \*\*Q) on OVERTIME PAGE

\*B1=Double time begins after 10 hours on Saturday

\*\*Q=Triple time on Labor Day if worked.

## HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

When a holiday falls on Sunday the following Monday shall be observed as the holiday.

## REGISTERED APPRENTICES

Wages per hour

one year terms at the following percentage of Journey person's wage.

1st	2nd	3rd	4th
60 %	70 %	80 %	90 %

Supplemental Benefits per hour worked:

Apprentices \$ 24.42

1-40

## Ironworker

11/01/2022

**JOB DESCRIPTION** Ironworker

**DISTRICT** 11

## ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster

## WAGES

Per hour:

	07/01/2022	07/01/2023 Additional
Structural	\$ 51.38	\$ 2.34*
Reinforcing*	51.38	2.34*
Ornamental	51.38	2.34*
Chain Link Fence	51.38	2.34*

\* To be allocated at a later date.

NOTE: For Reinforcing classification ONLY, Ironworker 4-46Reinf rates apply in Rockland County's southern section (south of Convent Road and east of Blue Hills Road).

On Government Mandated Irregular Work Days or Shift Work, the following wage will be paid:

1st Shift	\$ 51.38
2nd Shift	65.79
3rd Shift	70.59

\*\*Note- Any shift that works past 12:00 midnight shall receive the 3rd shift differential.

## SUPPLEMENTAL BENEFITS

Per hour:



Journeyman \$ 42.71

**OVERTIME PAY**

See (B1, Q, V) on OVERTIME PAGE

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16) on HOLIDAY PAGE

If a holiday falls on Saturday, it will be observed Friday. If a holiday falls on Sunday, it will be observed Monday.

**REGISTERED APPRENTICES**

Wages:

(1) year terms at the following wage:

	1st yr	2nd yr	3rd yr	4th yr
1st Shift	\$ 25.69	\$ 30.83	\$ 35.97	\$ 41.10
2nd Shift	35.34	41.44	47.53	53.61
3rd Shift	38.56	44.97	51.38	57.77

Supplemental Benefits per hour:

1st year	\$ 36.71
2nd year	37.91
3rd year	39.11
4th year	40.31

11-417

**Laborer - Building**

**11/01/2022**

**JOB DESCRIPTION** Laborer - Building

**DISTRICT** 11

**ENTIRE COUNTIES**

Orange, Sullivan, Ulster

**PARTIAL COUNTIES**

Delaware: Only the Townships of Andes, Bovina, Davenport, Delhi, Franklin, Hamden, Harpersfield, Kortright, Meredith, Middletown, Roxbury, and Stamford.

Greene: Only the Township of Catskill.

**WAGES**

GENERAL LABORER: flag person, portable generator tender, portable pump tender, temporary heat tender, chipping hammer, acoustic pump, mixer, concrete laborer, demolition, demo saw, general cleanup, landscaping, mason tender, jackhammer, pavement breaker, pressure blasting, signalperson, buggies, wrecking, chain saw, vacuums, cutting torch, discharge pipe, mega mixer, pump crete machine. INTERMEDIATE LABORER: excavation, grading, backfilling, tampers, walk behind roller, when OSHA or contractor requires negative respirator.

PREMIUM LABORER: Environmental work, asbestos abatement, toxic and hazardous abatement, lead abatement work, mold remediation and biohazards.

WAGES:(per hour)

07/01/2022

General	\$ 40.40
Intermediate	42.30
Premium	45.30

These rates will cover all work within five feet of the building foundation line.

Shift Differential: On all Governmental mandated irregular or off shift work, an additional 25% of wage is required. The 25% shift differential will be paid on public works contract for shifts or irregular workdays outside the normal working hours for 2nd and 3rd shifts or irregular work day or when mandated or required by state, federal, county, local or other governmental agency contracts.

**SUPPLEMENTAL BENEFITS**

Per hour:

Journeyman	\$ 31.65
Shift	38.61

**OVERTIME PAY**

See (B, E, E5, Q) on OVERTIME PAGE

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

Holidays that fall on Saturday shall be observed on Friday, when holidays fall on Sunday they shall be observed on Monday.

**REGISTERED APPRENTICES**



1000 hour terms at the following wage rates:

1st term	\$ 22.22
2nd term	26.26
3rd term	30.30
4th term	34.34

Supplemental Benefits per hour:

Apprentices	\$ 27.03
Shift	32.71

11-17.BA

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**Laborer - Heavy&Highway****11/01/2022**

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**JOB DESCRIPTION** Laborer - Heavy&Highway

**DISTRICT** 11

**ENTIRE COUNTIES**

Orange, Sullivan, Ulster

**PARTIAL COUNTIES**

Delaware: Only the Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Meredith, and Davenport.

Greene: Only the Township of Catskill.

**WAGES**

CLASS 1: Flagperson, gateperson.

CLASS 2: General laborer, chuck tender, nipper, powder carrier, magazine tender, concrete men, vibrator men, mason tender, mortar men, traffic control, custodial work, temporary heat, pump men, pit men, dump men, asphalt men, joint setter, signalman, pipe men, riprap, dry stone layers, jack hammer, bush hammer, pavement breaker, men on mulching & seeding machines, all seeding & sod laying, landscape work, walk behind self-propelled power saws, grinder, walk behind rollers and tampers of all types, burner men, filling and wiring of baskets for gabion walls, chain saw operator, railroad track laborers, power buggy, plaster & acoustic pump, power brush cutter, retention liners, walk behind surface planer, chipping hammer, manhole, catch basin or inlet installing, mortar mixer, laser men. \*Micropaving and crack sealing.

CLASS 3: Asbestos, toxic, bio remediation and phyto-remediation, lead or hazardous materials abatement when certification or license is required, Drilling Equipment Only Where a Separate Air Compressor Unit Supplies Power.

CLASS 4: Asphalt screedman, blaster, all laborers involved in pipejacking and boring operations not exceeding more than 10 feet into pipe, boring or drilled area.

WAGES: (per hour)	07/01/2022	06/01/2023	06/01/2024 Additional
Class 1	\$ 39.05	\$ 40.80	\$ 2.65**
Class 2	43.30	44.80	2.35**
Class 3	47.75	49.40	2.45**
Class 4	52.90	54.70	2.20**

\* When laborers are performing micro paving, crack sealing or slurry application when not part of asphalt prep operations laborers shall receive an additional \$2.50 per hour over rate.

\*\*To be allocated at a later date.

SHIFT DIFFERENTIAL: Night work and irregular shift require 20% increase on wages for all Government mandated night and irregular shift work.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

**SUPPLEMENTAL BENEFITS**

Per hour:

Journeyman	\$ 31.53	\$ 32.28
Shift	37.09	37.96

**OVERTIME PAY**

See (B, E, P, \*R, \*\*S, \*\*\*T, X) on OVERTIME PAGE

\*For Mon-Fri Holidays, Double Benefits to be paid for all hours worked.

\*\*For Saturday Holidays, Two and one Half Benefits for all hours worked.

\*\*\*For Sunday Holidays, Triple Benefits for all hours worked.

**HOLIDAY**

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE



Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE

To be eligible for a paid holiday, an employee must work at least two (2) days in the calendar week or payroll week in which the holiday falls.

### REGISTERED APPRENTICES

(1000) hour terms at the following wages.

	07/01/2022
1st term	\$ 22.22
2nd term	26.26
3rd term	30.30
4th term	34.34

Supplemental Benefits per hour:

All Terms Regular	\$ 27.03
All Terms Shift Rate	31.57

11-17.1H/H

### Laborer - Tunnel

11/01/2022

**JOB DESCRIPTION** Laborer - Tunnel

**DISTRICT** 11

### ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

### PARTIAL COUNTIES

Chenango: Townships of Columbus, Sherburne and New Berlin.

Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

### WAGES

Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

	07/01/2022
Class 1	\$ 53.45
Class 2	55.60
Class 4	62.00
Class 5	44.80

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional \$ 3.00 an hour.

SHIFT DIFFERENTIAL...On all Government mandated irregular shift work:

- Employee shall be paid at time and one half the regular rate Monday through Friday.
- Saturday shall be paid at 1.65 times the regular rate.
- Sunday shall be paid at 2.15 times the regular rate.

### SUPPLEMENTAL BENEFITS

Per hour:

Benefit 1	\$ 34.45
Benefit 2	51.60
Benefit 3	68.75

Benefit 1 applies to straight time hours, paid holidays not worked.

Benefit 2 applies to over 8 hours in a day (M-F), irregular shift work hours worked, and Saturday hours worked.

Benefit 3 applies to Sunday and Holiday hours worked.

### OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

### HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

When a recognized Holidays falls on Saturday or Sunday, holidays falling on Saturday shall be recognized or observed on Friday and holidays falling on Sunday shall be recognized or observed on Monday. Employees ordered to work on the Saturday or Sunday of the holiday or on the recognized or the observed Friday or Monday for those holidays falling on Saturday or Sunday shall receive double time the established rate and benefits for the holiday.



## REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and location where the work is to be performed.

11-17/60/235/754Tun

### Lineman Electrician

11/01/2022

#### JOB DESCRIPTION Lineman Electrician

DISTRICT 6

#### ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

#### WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe, or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. (Ref #14.01.01)

Per hour:	07/01/2022	05/01/2023	05/06/2024
Lineman, Technician	\$ 56.00	\$ 57.40	\$ 58.90
Crane, Crawler Backhoe	56.00	57.40	58.90
Welder, Cable Splicer	56.00	57.40	58.90
Digging Mach. Operator	50.40	51.66	53.01
Tractor Trailer Driver	47.60	48.79	50.07
Groundman, Truck Driver	44.80	45.92	47.12
Equipment Mechanic	44.80	45.92	47.12
Flagman	33.60	34.44	35.34

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work". (Ref #14.02.01-A)

Lineman, Technician	\$ 56.00	\$ 57.40	\$ 58.90
Crane, Crawler Backhoe	56.00	57.40	58.90
Cable Splicer	61.60	63.14	64.79
Certified Welder -			
Pipe Type Cable	58.80	60.27	61.85
Digging Mach. Operator	50.40	51.66	53.01
Tractor Trailer Driver	47.60	48.79	50.07
Groundman, Truck Driver	44.80	45.92	47.12
Equipment Mechanic	44.80	45.92	47.12
Flagman	33.60	34.44	35.34

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates apply on switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. (Ref #14.02.01-B)

Lineman, Tech, Welder	\$ 57.32	\$ 58.72	\$ 60.22
Crane, Crawler Backhoe	57.32	58.72	60.22
Cable Splicer	63.05	64.59	66.24



Certified Welder -			
Pipe Type Cable	60.19	61.66	63.23
Digging Mach. Operator	51.59	52.85	54.20
Tractor Trailer Driver	48.72	49.91	51.19
Groundman, Truck Driver	45.86	46.98	48.18
Equipment Mechanic	45.86	46.98	48.18
Flagman	34.39	35.23	36.13

Additional \$1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. (Ref #14.03.01)

Lineman, Tech, Welder	\$ 58.51	\$ 59.91	\$ 61.41
Crane, Crawler Backhoe	58.51	59.91	61.41
Cable Splicer	58.51	59.91	61.41
Digging Mach. Operator	52.66	53.92	55.27
Tractor Trailer Driver	49.73	50.92	52.20
Groundman, Truck Driver	46.81	47.93	49.13
Equipment Mechanic	46.81	47.93	49.13
Flagman	35.11	35.95	36.85

Additional \$1.00 per hour for entire crew when a helicopter is used.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM to 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM to 1:00 AM REGULAR RATE PLUS 17.3 %
3RD SHIFT	12:30 AM to 9:00 AM REGULAR RATE PLUS 31.4 %

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

### SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2022	05/01/2023	05/06/2024
Journeyman	\$ 25.90 *plus 7% of the hourly wage paid	\$ 26.40 *plus 7% of the hourly wage paid	\$ 26.90 *plus 7% of the hourly wage paid
Journeyman Lineman or Equipment Operators with Crane License	\$ 27.90 *plus 7% of the hourly wage paid	\$ 29.40 *plus 7% of the hourly wage paid	\$ 30.90 *plus 7% of the hourly wage paid

\*The 7% is based on the hourly wage paid, straight time or premium time.

### OVERTIME PAY

See (B, E, Q,) on OVERTIME PAGE. \*Note\* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

### HOLIDAY

Paid	See ( 5, 6, 8, 13, 25 ) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime	See ( 5, 6, 8, 13, 25 ) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

### REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.



1st 60%	2nd 65%	3rd 70%	4th 75%	5th 80%	6th 85%	7th 90%
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**SUPPLEMENTAL BENEFITS per hour:**

07/01/2022	05/01/2023	05/06/2024
\$ 25.90	\$ 26.40	\$ 26.90
*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid

\*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249a

**Lineman Electrician - Teledata**

**11/01/2022**

**JOB DESCRIPTION** Lineman Electrician - Teledata

**DISTRICT 6**

**ENTIRE COUNTIES**

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

**WAGES**

Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2022	01/01/2023	01/01/2024	01/01/2025
Cable Splicer	\$ 36.28	\$ 37.73	\$ 39.24	\$ 40.81
Installer, Repairman	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Teledata Lineman	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Tech., Equip. Operator	\$ 34.43	\$ 35.81	\$ 37.24	\$ 38.73
Groundman	\$ 18.25	\$ 18.98	\$ 19.74	\$ 20.53

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

**SUPPLEMENTAL BENEFITS**

Per hour:	07/01/2022	01/01/2023	01/01/2024	01/01/2025
Journeyman	\$ 5.14	\$ 5.14	\$ 5.14	\$ 5.14
	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid

\*The 3% is based on the hourly wage paid, straight time rate or premium rate.

**OVERTIME PAY**

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

**Lineman Electrician - Traffic Signal, Lighting**

**11/01/2022**

**JOB DESCRIPTION** Lineman Electrician - Traffic Signal, Lighting

**DISTRICT 6**

**ENTIRE COUNTIES**

Columbia, Dutchess, Orange, Putnam, Rockland, Ulster



## WAGES

Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.  
(Ref #14.01.02)

Per hour:	07/01/2022	05/01/2023	05/06/2024
Lineman, Technician	\$ 49.47	\$ 50.60	\$ 51.82
Crane, Crawler Backhoe	49.47	50.60	51.82
Certified Welder	51.94	53.13	54.41
Digging Machine	44.52	45.54	46.64
Tractor Trailer Driver	42.05	43.01	44.05
Groundman, Truck Driver	39.58	40.48	41.46
Equipment Mechanic	39.58	40.48	41.46
Flagman	29.68	30.36	31.09

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4%

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day.

NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

## SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2022	05/01/2023	05/06/2024
Journeyman	\$ 25.90	\$ 26.40	\$ 26.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid
Journeyman Lineman or Equipment Operators with Crane License	\$ 27.90	\$ 29.40	\$ 30.90
	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid

\*The 7% is based on the hourly wage paid, straight time or premium time.

## OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE. \*Note\* Double time for all emergency work designated by the Dept. of Jurisdiction.

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

## HOLIDAY

Paid: See ( 5, 6, 8, 13, 25 ) on HOLIDAY PAGE and Governor of NYS Election Day.



Overtime: See ( 5, 6, 8, 13, 25 ) on HOLIDAY PAGE and Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

### REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2022	05/01/2023	05/06/2024
\$ 25.90	\$ 26.40	\$ 26.90
*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid	*plus 7% of the hourly wage paid

\*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aReg8LT

### Lineman Electrician - Tree Trimmer

11/01/2022

**JOB DESCRIPTION** Lineman Electrician - Tree Trimmer

**DISTRICT** 6

### ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

### WAGES

Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also would include stump removal near underground energized electrical lines, including telephone and CATV lines.

Per hour:	07/01/2022	01/01/2023
Tree Trimmer	\$ 28.25	\$ 29.80
Equipment Operator	24.98	26.35
Equipment Mechanic	24.98	26.35
Truck Driver	20.80	21.94
Groundman	17.13	18.07
Flag person	13.20*	13.20*

\*NOTE: Subject to change due to any minimum wage increases.

### SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2022	01/01/2023
Journeyman	\$ 10.23	\$ 10.48
	*plus 3% of the hourly wage paid	*plus 3% of the hourly wage paid

\* The 3% is based on the hourly wage paid, straight time rate or premium rate.

### OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

### HOLIDAY

Paid: See (5, 6, 8, 15) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday.

All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT



**Mason - Building**

**11/01/2022**

**JOB DESCRIPTION** Mason - Building

**DISTRICT** 11

**ENTIRE COUNTIES**

Dutchess, Sullivan, Ulster

**PARTIAL COUNTIES**

Orange: Entire county except the Township of Tuxedo.

**WAGES**

Per hour:

07/01/2022 06/01/2023

Bricklayer	\$ 43.94	\$ 45.00
Cement Mason	43.94	45.00
Plasterer/Stone Mason	43.94	45.00
Pointer/Caulker	43.94	45.00

Additional \$1.00 per hour for power saw work

Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK: When shift work or an irregular work day is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:

Irregular work day requires 15% premium

Second shift an additional 15% of wage plus benefits to be paid

Third shift an additional 25% of wage plus benefits to be paid

**SUPPLEMENTAL BENEFITS**

Per hour:

Journeyman	\$ 36.44	\$ 37.39
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**OVERTIME PAY**

Cement Mason See ( B, E, Q, W ) on OVERTIME PAGE.

All Others See ( B, E, Q ) on OVERTIME PAGE.

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

**REGISTERED APPRENTICES**

Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5du-b

**Mason - Building**

**11/01/2022**

**JOB DESCRIPTION** Mason - Building

**DISTRICT** 9

**ENTIRE COUNTIES**

Dutchess, Orange, Putnam, Sullivan, Ulster

**WAGES**

Per hour:

07/01/2022 12/05/2022 06/05/2023

Building:	Additional	Additional
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Tile, Marble,& Terrazzo



Mechanic/Setter \$ 56.42 \$ 0.64 \$ 0.64

### SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker: \$ 22.66\*  
+ \$7.67

\* This portion of benefits subject to same premium rate as shown for overtime wages.

### OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

Double time rate applies after 10 hours

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

### REGISTERED APPRENTICES

Wage per hour:

(Counties of Orange & Putnam)

750 hour terms at the following wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-	751-	1501-	2251-	3001-	3751-	4501-	5251-	6001-	6751-
750	1500	2250	3000	3750	4500	5250	6000	6750	7500
\$21.23	\$26.11	\$33.26	\$38.14	\$41.67	\$45.04	\$48.60	\$53.47	\$56.25	\$60.33

Supplemental Benefits per hour:

(Counties of Orange & Putnam)

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$12.55*	\$12.55*	\$15.16*	\$15.16*	\$16.75*	\$18.30*	\$19.35*	\$19.40*	\$17.45*	\$22.80*
+\$0.69	+\$0.74	+\$0.84	+\$0.88	+\$1.28	+\$1.33	+\$1.70	+\$1.75	+\$5.90	+\$6.42

Wages per hour:

(Counties of Dutchess, Sullivan, Ulster)

750 hour terms at the following wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-	751-	1501-	2251-	3001-	3751-	4501-	5251-	6001-	6751-
750	1500	2250	3000	3750	4500	5250	6000	6750	7500
\$19.83	\$23.92	\$25.89	\$29.98	\$32.74	\$36.32	\$39.61	\$42.71	\$44.31	\$47.73

Supplemental Benefits per hour:

(Counties of Dutchess, Sullivan, Ulster)

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$12.55*	\$12.55*	\$14.66*	\$14.66*	\$15.60*	\$16.16*	\$16.66*	\$17.66*	\$15.66*	\$20.41*
+\$0.65	+\$0.69	+\$0.74	+\$0.78	+\$1.15	+\$1.19	+\$1.53	+\$1.57	+\$6.09	+\$6.18

\* This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52B

### Mason - Building

11/01/2022

JOB DESCRIPTION Mason - Building

DISTRICT 9

ENTIRE COUNTIES



Dutchess, Orange, Putnam, Sullivan, Ulster

### WAGES

Per hour: 07/01/2022 12/05/2022 06/05/2023

Building Additional Additional

Tile, Marble, &  
Terrazzo Finisher \$ 46.38 \$ 0.55 \$ 0.54

### SUPPLEMENTAL BENEFITS

Journeyworker:

Per Hour \$ 19.76\*  
+ \$7.54

\*This portion of benefits subject to same premium rate as shown for overtime wages

### OVERTIME PAY

See (A, \*E, Q) on OVERTIME PAGE

Double time rate applies after 10 hours on Saturdays.

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88B-tf

### Mason - Building

11/01/2022

**JOB DESCRIPTION** Mason - Building

**DISTRICT** 9

### ENTIRE COUNTIES

Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

### WAGES

Wages: 07/01/2022

Marble Cutters & Setters \$ 62.17

### SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker \$ 38.27

### OVERTIME PAY

See (B, E, Q, V) on OVERTIME PAGE

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

### REGISTERED APPRENTICES

Wage Per Hour:

750 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6751	6751-7500
\$ 24.88	\$ 27.97	\$ 31.08	\$ 34.17	\$ 37.29	\$ 40.39	\$ 43.51	\$ 46.61	\$ 52.82	\$ 59.05

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 20.55	\$ 22.04	\$ 23.52	\$ 25.01	\$ 26.47	\$ 27.96	\$ 29.42	\$ 30.91	\$ 33.86	\$ 36.81

9-7/4

### Mason - Heavy&Highway

11/01/2022

**JOB DESCRIPTION** Mason - Heavy&Highway

**DISTRICT** 11

### ENTIRE COUNTIES

Dutchess, Sullivan, Ulster



## PARTIAL COUNTIES

Orange: Entire county except the Township of Tuxedo.

## WAGES

Per hour:

	07/01/2022	06/01/2023
Bricklayer	\$ 44.44	\$ 45.50
Cement Mason	44.44	45.50
Marble/Stone Mason	44.44	45.50
Plasterer	44.44	45.50
Pointer/Caulker	44.44	45.50

Additional \$1.00 per hour for power saw work

Additional \$0.50 per hour for swing scaffold or staging work

SHIFT WORK: When shift work or an irregular work day is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:

Irregular work day requires 15% premium

Second shift an additional 15% of wage plus benefits to be paid

Third shift an additional 25% of wage plus benefits to be paid

## SUPPLEMENTAL BENEFITS

Per hour:

Journeyman	\$ 36.44	\$ 37.39
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## OVERTIME PAY

Cement Mason See ( B, E, Q, W )

All Others See ( B, E, Q )

## HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

- Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

- Supplemental Benefits are not paid for paid Holiday

- If Holiday is worked, Supplemental Benefits are paid for hours worked.

- Whenever an Employee works within three (3) calendar days before a holiday, the Employee shall be paid for the Holiday.

## REGISTERED APPRENTICES

Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5du-H/H

## Millwright

11/01/2022

**JOB DESCRIPTION** Millwright

**DISTRICT** 6

## ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

## WAGES

THE FOLLOWING RATE APPLIES TO ANY GAS/STEAM TURBINE AND OR RELATED COMPONENT WORK, INCLUDING NEW INSTALLATIONS OR MAINTENANCE AND ANY/ALL WORK PERFORMED WITHIN THE PROPERTY LIMITS OF A NUCLEAR FACILITY.

Per hour:

07/01/2022

Millwright - Power Generation

\$ 41.23



NOTE: ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):

- Certified Welders shall receive an additional \$1.75 per hour provided he/she is directed to perform certified welding.
- If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive an additional \$1.50 per hour.
- An employee performing the work of a machinist shall receive an additional \$2.00 per hour. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional \$1.00 per hour.

#### SUPPLEMENTAL BENEFITS

Per hour paid:

Journeyman \$ 26.72\*

\*NOTE: Subject to OT premium

#### OVERTIME PAY

See (B, E, \*E2, Q, V) on OVERTIME PAGE

\*NOTE - Saturday may be used as a make-up day and worked at the straight time rate of pay during a work week when conditions such as weather, power failure, fire, or natural disaster prevent the performance of work on a regular scheduled work day.

#### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

NOTE: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

#### REGISTERED APPRENTICES

WAGES per hour: One year terms at the following percentage of Journeyman's wage:

Appr. 1st year	65 %*
Appr. 2nd year	75 %*
Appr. 3rd year	80 %*
Appr. 4th year	90 %*

\*NOTE: Additional premium for the following work listed below:

Certified Welder	\$ 1.75
Hazardous Waste Work	1.50
Machinist	2.00
Underground (500' and below)	1.00

SUPPLEMENTAL BENEFITS per hour:

Appr. 1st year	\$ 11.83
Appr. 2nd year	22.26
Appr. 3rd year	23.74
Appr. 4th year	25.24

6-1163Power

**Millwright**

**11/01/2022**

**JOB DESCRIPTION** Millwright

**DISTRICT 2**

**ENTIRE COUNTIES**

Sullivan, Ulster

#### WAGES

Per hour: 07/01/2022

Building	\$ 39.14
Heavy & Highway	41.14

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):

- Certified Welders shall receive \$1.75 per hour in addition to the current Millwrights rate provided he/she is directed to perform certified welding.
- For Building work if a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive a \$1.50 premium per hour for Building work.



- For Heavy & Highway work if the work is performed at a State or Federally designated hazardous waste site where employees are required to wear protective gear, the employees performing the work shall receive an additional \$2.00 per hour over the millwright heavy and highway wage rate for all hours worked on the day protective gear was worn.
- An employee performing the work of a machinist shall receive \$2.00 per hour in addition to the current Millwrights rate. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional \$1.00.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 30.39

### OVERTIME PAY

See (B, E, \*E2, Q) on OVERTIME PAGE

\*Note - Saturday may be used as a make-up day and worked at the straight time rate of pay during a work week when conditions such as weather, power failure, fire, or natural disaster prevent the performance of work on a regular scheduled work day.

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

### REGISTERED APPRENTICES

Wages per hour:

(1)year terms at the following percentage of Journeyman's rate.

1st	2nd	3rd	4th
65%	75%	80%	90%

Supplemental Benefits per hour:

Apprentices:

1st term	\$ 13.35
2nd term	25.28
3rd term	26.98
4th term	28.69

2-1163.3

### Operating Engineer - Building / Heavy&Highway

11/01/2022

**JOB DESCRIPTION** Operating Engineer - Building / Heavy&Highway

**DISTRICT** 11

### ENTIRE COUNTIES

Delaware, Orange, Rockland, Sullivan, Ulster

### WAGES

CLASS A5: Cranes, Derricks and Pile Drivers 100 tons or more and Tower Cranes, with 140ft boom and over.

CLASS A4: Cranes, Derricks and Pile Drivers 100 tons or more and Tower Cranes, with 100ft to 139ft boom.

CLASS A3: Cranes, Derricks and Pile Drivers 100 tons or more and Tower Cranes with a boom under 100ft.

CLASS A2: Cranes, Derricks and Pile Drivers less than 100 tons with 140ft boom and over.

CLASS A1: Cranes, Derricks and Pile Drivers less than 100 tons with a 100ft to 139ft boom.

CLASS A: Cranes, Derricks and Pile Drivers less than 100 tons with a boom under 100ft.; Autograde Combination Subgrader, Base Material Spreader and Base Trimmer (CMI and Similar Types); Autograde Pavement profiler (CMI and Similar Types); Autograde Pavement Profiler and Recycle type (CMI and Similar Type); Autograde Placer-Trimmed-Spreader Comb. (CMI & Similar types); Autograde Slipform Paver (CMI & Similar Types); Central Power Plants (all types); Chief of Party; Concrete Paving Machines; Drill (Bauer, AMI and Similar Types); Drillmaster, Quarrymaster (Down the Hole Drill), Rotary Drill, Self-Propelled Hydraulic Drill, Self-Powered Drill; Draglines; Elevator Graders; Excavator; Front End Loaders (5 yds. and over); Gradalls; Grader-Rago; Helicopters (Co-Pilot); Helicopters (Communications Engineer);Juntann Pile Driver; Locomotive (Large); Mucking Machines; Pavement & Concrete Breaker, i.e., Superhammer & Hoe Ram; Roadway Surface Grinder; Prentice Truck; Scooper (Loader and Shovel); Shovels; Tree Chopper with Boom; Trench Machines (Cable Plow); Tunnel Boring Machine; Vacuum Truck



CLASS B: "A" Frame; Backhoe (Combination); Boom Attachment on Loaders (Rate based on size of Bucket) not applicable to Pipehook; Boring and Drilling Machines; Brush Chopper, Shredder and Tree Shredder, Tree Shearer; Bulldozer(Fine Grade); Cableways; Carryalls; Concrete Pump; Concrete Pumping System, Pump Concrete and Similar Types; Conveyors (125 ft. and over); Drill Doctor (duties incl. Dust Collector Maintenance); Front End Loaders (2 yds. but less than 5 yds.); Graders (Finish); Groove Cutting Machine (Ride on Type); Heater Planer; Hoists (all type Hoists, shall also include Steam, Gas, Diesel, Electric, Air Hydraulic, Single and Double Drum, Concrete, Brick Shaft Caisson, Snorkel Roof, and/or any other Similar Type Hoisting Machines, portable or stationary, except Chicago Boom Type); Long Boom Rate to be applied if Hoist is "Outside Material Tower Hoist"\*\*\*; Hydraulic Cranes-10 tons and under; Hydraulic Dredge; Hydro-Axe; Hydro Blaster; Jacks-Screw Air Hydraulic Power Operated Unit or Console Type (not hand Jack or Pile Load Test Type); Log Skidder; Pans; Pavers (all) concrete; Plate and Frame Filter Press; Pumpcrete Machines, Squeezcrete & Concrete Pumping (regardless of size); Scrapers; Side Booms; "Straddle"Carrier-Ross and similar types; Winch Trucks (Hoisting); Whip Hammer

CLASS C: Asphalt Curbing Machine; Asphalt Plant Engineer; Asphalt Spreader; Autograde Tube Finisher and Texturing Machine (CMI & Similar types); Autograde Curecrete Machine (CMI & Similar Types); Autograde Curb Trimmer & Sidewalk, Shoulder, Slipform (CMI & Similar Types); Bar Bending Machines (Power); Batchers, Batching Plant and Crusher on Site; Belt Conveyor Systems; Boom Type Skimmer Machines; Bridge Deck Finisher; Bulldozer(except fine grade); Car Dumpers (Railroad); Compressor and Blower Type Units (used independently or mounted on dual purpose Trucks, on Job Site or in conjunction with jobsite, in Loading and Unloading of Concrete, Cement, Fly Ash, Instantcrete, or Similar Type Materials); Compressors (2 or 3 in Battery); Concrete Finishing Machines; Concrete cleaning decontamination machine operator; Concrete Saws and Cutters (Ride-on type); Concrete Spreaders (Hetzl, Rexomatic and Similar Types); Concrete Vibrators; Conveyors (under 125 feet); Crushing Machines; Directional Boring Machines; Ditching Machine-small (Ditch-witch, Vermeer, or Similar type); Dope Pots (Mechanical with or without pump); Dumpsters; Elevator; Fireman; Fork Lifts (Economobile, Lull and Similar Types of Equipment); Front End Loaders (1 yd. and over but under 2 yds.); Generators (2 or 3 in Battery); Giraffe Grinders; GROUT Pump; Gunnite Machines (excluding nozzle); Hammer Vibrator (in conjunction with Generator); Heavy Equipment Robotics Operator Technician; Hoists-Roof, Tugger, Aerial Platform Hoist & House Cars; Hoppers; Hopper Doors (power operated); Hydro Blaster; Hydraulic Jacking Trailer; Ladders (motorized); Laddervator; Locomotive-dinky type; Maintenance -Utility Man; Master Environmental Maintenance Technician; Mechanics; Mixers (Excepting Paving Mixers); Motor Patrols; Pavement Breakers (small self propelled ride on type-also maintains compressor hydraulic unit); Pavement Breaker-truck mounted; Pipe Bending Machine (Power); Pitch Pump; Plaster Pump (regardless of size); Post Hole Digger (Post Pounder & Auger); Rod Bending Machines (Power); Roller-Black Top; Scales (Power); Seaman pulverizing mixer; Shoulder widener; Silos; Skidsteer (all attachments); Skimmer Machines (boom-type); Steel Cutting Machine (service & maintain); Tam Rock Drill; Tractors; Transfer Machine; Captain (Power Boats); Tug Master (powerboats); Ultra High Pressure Waterjet Cutting Tool System operator/maintenance technician; Vacuum Blasting Machine; Vibrating Plants (used in conjunction with unloading); Welder and Repair Mechanics

CLASS D: Brooms and Sweepers; Chippers; Compressor (single); Concrete Spreaders (small type); Conveyor Loaders (not including Elevator Graders); Engines-large diesel (1620 HP) and Staging Pump; Farm Tractors; Fertilizing Equipment (Operation & Maintenance of); Fine Grade Machine (small type); Form Line Graders (small type); Front End Loader (under 1 yard); Generator (single); Grease, Gas, Fuel and Oil supply trucks; Heaters (Nelson or other type incl. Propane, Natural Gas or Flowtype Units); Lights, Portable Generating Light Plants; Mixers (Concrete, small); Mulching Equipment (Operation and Maintenance of); Pumps (2 or less than 4 inch suction); Pumps (4 inch suction and over incl. submersible pumps); Pumps (Diesel Engine and Hydraulic-immaterial of power); Road Finishing Machines (small type); Rollers-grade, fill or stone base; Seeding Equip. (Operation and Maintenance of); Sprinkler & Water Pump Trucks (used on jobsite or in conjunction with jobsite); Steam Jennies and Boilers-irrespective of use; Stone Spreader; Tamping Machines, Vibrating Ride-on; Temporary Heating Plant (Nelson or other type, incl. Propane, Natural Gas or Flow Type Units); Water & Sprinkler Trucks (used on or in conjunction with jobsite); Welding Machines (Gas, Diesel, and/or Electric Converters of any type, single, two, or three in a battery); Wellpoint Systems (including installation by Bull Gang and Maintenance of)

CLASS E: Assistant Engineer/Oiler; Drillers Helper; Maintenance Apprentice (Deck Hand); Maintenance Apprentice (Oiler); Mechanics' Helper; Tire Repair and Maintenance; Transit/Instrument Man

WAGES:(per hour)

07/01/2022

Class A5	\$ 63.72 plus 3.00*
Class A4	62.72 plus 3.00*
Class A3	61.72 plus 3.00*
Class A2	59.22 plus 3.00*
Class A1	58.22 plus 3.00*
Class A	57.22 plus 3.00*
Class B	55.63 plus 3.00*
Class C	53.72 plus 3.00*
Class D	52.09 plus 3.00*
Class E	50.38 plus 3.00*
Safety Engineer	57.96 plus 3.00*

Helicopter:	
Pilot/Engineer	59.04 plus 3.00*
Co Pilot	57.22 plus 3.00*
Communications Engineer	57.22 plus 3.00*



**Surveying:**

Chief of Party	57.22 plus 3.00*
Transit/Instrument Man	50.38 plus 3.00*
Rod/Chainman	47.80 plus 3.00*

Additional \$0.75 for Survey work Tunnel under compressed air.  
Additional \$0.50 for Hydrographic work.

\*The \$3.00 is added to the Class Base Wage for all hours worked. Additionally, the \$3.00 is subject to the V-Code listed on the OVERTIME CODE Sheet.

\*\*Outside Material Hoist (Class B) receives additional \$ 1.00 per hour on 110 feet up to 199 feet total height, \$ 2.00 per hour on 200 feet and over total height.

- SHIFT WORK: On all Government mandated irregular or off shift work, an additional 15% on straight time hours.

- On HAZARDOUS WASTE REMOVAL or ASBESTOS REMOVAL work, or any state or federally DESIGNATED HAZARDOUS WASTE SITE:

For projects bid on or before April 1, 2020...Where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection, the Operating Engineer shall receive the hourly wage plus an additional twenty percent (20%) of that wage for the entire shift.

For projects bid after April 1, 2020...On hazardous waste removal work of any kind, including state or federally designated site where the operating engineer is required to wear level A, B, or C personal protection the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour. An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$ 1.00 per hour. This shall also apply to sites where the level D personal protection is required.

**SUPPLEMENTAL BENEFITS**

Per hour:

Journeyman	\$ 33.50
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SHIFT WORK: On all Government mandated irregular or off shift work, an additional 15% on straight time hours.

**OVERTIME PAY**

See (B, E, Q, \*V, X) on OVERTIME PAGE

\*15% premium is also required on shift work benefits

**HOLIDAY**

Paid: See (5, 6, 10, 13, 15) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 13, 15) on HOLIDAY PAGE

Holidays falling on Sunday will be celebrated on Monday.

**REGISTERED APPRENTICES**

(1) year terms at the following percentage of journeyman's wage:

1st year	60% of Class base wage plus \$3.00*
2nd year	70% of Class base wage plus \$3.00*
3rd year	80% of Class base wage plus \$3.00*
4th year	90% of Class base wage plus \$3.00*

\*The \$3.00 is added to the Class Base Wage for all hours worked. Additionally, the \$3.00 is subject to the V-Code listed on the OVERTIME CODE Sheet.

Supplemental Benefits per hour:

Apprentices	\$ 33.50
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11-825

**Operating Engineer - Marine Dredging**

**11/01/2022**

**JOB DESCRIPTION** Operating Engineer - Marine Dredging

**DISTRICT** 4

**ENTIRE COUNTIES**

Albany, Bronx, Cayuga, Clinton, Columbia, Dutchess, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Orange, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

**WAGES**

These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.



Per Hour:	07/01/2022	10/01/2022
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	\$ 42.66	\$ 43.94
CLASS A2 Crane Operator (360 swing)	38.02	39.16
CLASS B Dozer, Front Loader Operator on Land	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.	
CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer, Chief Mate, Electrician, Chief Welder, Maintenance Engineer Licensed Boat, Crew Boat Operator	36.89	38.00
CLASS B2 Certified Welder	34.73	35.77
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	33.78	34.79
CLASS C2 Boat Operator	32.69	33.67
CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	27.16	27.97

#### SUPPLEMENTAL BENEFITS

Per Hour:

THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B	\$ 11.40 plus 6% of straight time wage, Overtime hours add \$ 0.63	\$ 11.85 plus 6% of straight time wage, Overtime hours add \$ 0.63
All Class C	\$ 11.10 plus 6% of straight time wage, Overtime hours add \$ 0.48	\$ 11.60 plus 6% of straight time wage, Overtime hours add \$ 0.50
All Class D	\$ 10.80 plus 6% of straight time wage, Overtime hours add \$ 0.33	\$ 11.35 plus 6% of straight time wage, Overtime hours add \$ 0.38

#### OVERTIME PAY

See (B2, F, R) on OVERTIME PAGE

#### HOLIDAY

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge



**JOB DESCRIPTION** Operating Engineer - Steel Erectors

**DISTRICT** 11

**ENTIRE COUNTIES**

Delaware, Orange, Rockland, Sullivan, Ulster

**WAGES**

CLASS A3: Cranes, Derricks and Pile Drivers 100 tons or more and Tower Cranes, with a 140 ft. boom and over.

CLASS A2: Cranes, Derricks and Pile Drivers 100 tons or more and Tower Cranes, with up to a 139 ft. boom and under.

CLASS A1: Cranes, Derricks and Pile Drivers less than 100 tons with a 140 ft. boom and over.

CLASS A: Cranes, Derricks and Pile Drivers less than 100 tons with up to a 139 ft. boom and under.

CLASS B: "A" Frame; Cherry Pickers(10 tons and under); Hoists (all type Hoists, shall also include Steam, Gas, Diesel, Electric, Air Hydraulic, Single and Double Drum, Concrete, Brick Shaft Caisson, Snorkel Roof, and/or any other Similar Type Hoisting Machines, portable or stationary, except Chicago Boom Type); Jacks-Screw Air Hydraulic Power Operated Unit or Console Type (not hand Jack or Pile Load Test Type); Side Booms; Straddle Carrier

CLASS C: Aerial Platform used as Hoist; Compressors (2 or 3 in Battery); Concrete cleaning/ decontamination machine operator; Directional Boring Machines; Elevator or House Cars; Conveyers and Tugger Hoists; Fireman; Fork Lifts; Generators (2 or 3 in Battery); Heavy Equipment Robotics Operator/Technician; Master Environmental Maintenance Technician; Maintenance -Utility Man; Rod Bending Machines (Power); Captain(powerboat); Tug Master; Ultra High Pressure Waterjet Cutting Tool System; Vacuum Blasting Machine; Welding Machines(gas or electric,2 or 3 in battery, including diesels); Transfer Machine; Apprentice Engineer/Oiler with either one compressor or one welding machine when used for decontamination and remediation

CLASS D: Compressor (single); Welding Machines (Gas, Diesel, and/or Electric Converters of any type); Welding System Multiple (Rectifier Transformer type)

CLASS E: Assistant Engineer/Oiler; Maintenance Apprentice (Deck Hand);Drillers Helper; Maintenance Apprentice (Oiler); Mechanics' Helper; Transit/Instrument Man

WAGES:(per hour)

07/01/2022

Class A3	\$ 65.74 plus 3.00*
Class A2	64.08 plus 3.00*
Class A1	61.24 plus 3.00*
Class A	59.58 plus 3.00*
Class B	56.79 plus 3.00*
Class C	54.13 plus 3.00*
Class D	52.60 plus 3.00*
Class E	50.84 plus 3.00*
Vacuum Truck	57.55 plus 3.00*
Safety Engineer	58.41 plus 3.00*

Helicopter:	
Pilot/Engineer	61.24 plus 3.00*
Co Pilot	60.85 plus 3.00*
Communications Engineer	60.85 plus 3.00*

Surveying:	
Chief of Party	57.55 plus 3.00*
Transit/Instrument man	50.84 plus 3.00*
Rod/Chainman	47.80 plus 3.00*
Additional \$0.75 for Survey work Tunnels under compressed air.	
Additional \$0.50 for Hydrographic work.	

\*The \$3.00 is added to the Class Base Wage for all hours worked. Additionally, the \$3.00 is subject to the V-Code listed on the OVERTIME CODE Sheet.

- SHIFT WORK: On all Government mandated irregular or off shift work, an additional 15% on straight time hours.  
- On HAZARDOUS WASTE REMOVAL or ASBESTOS REMOVAL work, or any state or federally DESIGNATED HAZARDOUS WASTE SITE:

For projects bid on or before April 1, 2020...Where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection, the Operating Engineer shall receive the hourly wage plus an additional twenty percent (20%) of that wage for the entire shift.



For projects bid after April 1, 2020...On hazardous waste removal work of any kind, including state or federally designated site where the operating engineer is required to wear level A, B, or C personal protection the operating engineer shall receive an hourly wage rate of his regular hourly wage plus \$5.00 per hour. An operating engineer working at a hazardous waste removal project or site at a task requiring hazardous waste related certification, but who is not working in a zone requiring level A, B, or C personal protection, shall receive an hourly wage rate of his regular rate plus \$ 1.00 per hour. This shall also apply to sites where the level D personal protection is required.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 33.50

### OVERTIME PAY

See (B, E, Q, \*V, X) on OVERTIME PAGE

\*15% premium is also required on shift work benefits

### HOLIDAY

Paid: See (5, 6, 10, 13, 15) on HOLIDAY PAGE

Overtime: See (5, 6, 10, 13, 15) on HOLIDAY PAGE

Holidays falling on Sunday will be celebrated on Monday.

### REGISTERED APPRENTICES

(1) year terms at the following percentage of journeyman's wage.

1st year	60% of Class base wage plus \$3.00*
2nd year	70% of Class base wage plus \$3.00*
3rd year	80% of Class base wage plus \$3.00*
4th year	90% of Class base wage plus \$3.00*

\*The \$3.00 is added to the Class Base Wage for all hours worked. Additionally, the \$3.00 is subject to the V-Code listed on the OVERTIME CODE Sheet.

Supplemental Benefits per hour:

Apprentices \$ 33.50

11-825SE

### Painter

11/01/2022

**JOB DESCRIPTION** Painter

**DISTRICT 1**

### ENTIRE COUNTIES

Columbia, Dutchess, Greene, Orange, Sullivan, Ulster

### WAGES

Per hour

07/01/2022

Brush/Paper Hanger	\$ 37.09
Dry Wall Finisher	37.09
Lead Abatement	37.09
Sandblaster-Painter	37.09
Spray Rate	38.09

See Bridge Painting rates for the following work:

Structural Steel , all work performed on tanks, ALL BRIDGES, towers, smoke stacks, flag poles. Rate shall apply to all of said areas from the ground up.

### SUPPLEMENTAL BENEFITS

Per hour

Journeyperson \$ 25.29

### OVERTIME PAY

See (B, E, E2, Q) on OVERTIME PAGE

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED SHIFT(S) OR SINGULAR IRREGULAR SHIFT OF AT LEAST A FIVE (5) DAY DURATION (MONDAY THROUGH FRIDAY), WHEN THE SHIFT STARTS BETWEEN THE HOURS LISTED BELOW:

4:00 PM to 6:30 AM REGULAR RATE PLUS 15%\*\*

OVERTIME ON MULTIPLE SHIFT WORK AND SINGULAR IRREGULAR SHIFT THE SHIFT RATE IS THE BASE RATE



**\*\*SHIFT RATE STOPS AFTER 6:30AM**

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6) on HOLIDAY PAGE

**REGISTERED APPRENTICES**

Wages per hour

Six (6) month terms at the following percentage of Journey person's wage

1st	2nd	3rd	4th	5th	6th
40%	50%	60%	70%	80%	90%

Supplemental Benefits per hour worked

1st term	\$ 10.99
All others	25.29

1-155

**Painter - Bridge & Structural Steel**

**11/01/2022**

**JOB DESCRIPTION** Painter - Bridge & Structural Steel

**DISTRICT 8**

**ENTIRE COUNTIES**

Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

**WAGES**

Per Hour:

STEEL:

Bridge Painting:	07/01/2022	10/01/2022
	\$ 53.00	\$ 54.50
	+ 9.63*	+ 10.10*

ADDITIONAL \$6.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

\* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK:

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

**SUPPLEMENTAL BENEFITS**

Per Hour:

Journeyworker:	\$ 10.90	\$ 11.78
	+ 30.60*	+ 30.75*

\* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

**OVERTIME PAY**

See (B, F, R) on OVERTIME PAGE

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (4, 6) on HOLIDAY PAGE

**REGISTERED APPRENTICES**



Wage - Per hour:

Apprentices: (1) year terms

1st year	\$ 21.20 + 3.86	\$ 21.80 + 4.04
2nd year	\$ 31.80 + 5.78	\$ 32.70 + 6.06
3rd year	\$ 42.40 + 7.70	\$ 43.60 + 8.08
Supplemental Benefits - Per hour:		
1st year	\$ .25 + 12.24	\$ .25 + 12.34
2nd year	\$ 10.90 + 18.36	\$ 10.90 + 18.51
3rd year	\$ 10.90 + 24.48	\$ 10.90 + 24.68

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

**Painter - Line Striping**

**11/01/2022**

**JOB DESCRIPTION** Painter - Line Striping

**DISTRICT** 8

**ENTIRE COUNTIES**

Albany, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Nassau, Orange, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

**WAGES**

Per hour:

Painter (Striping-Highway): 07/01/2022  
Striping-Machine Operator\* \$ 31.53

Linerman Thermoplastic 38.34

Note: \* Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.

NOTE - In order to use the '4 Day/10 Hour Work Schedule,' as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

**SUPPLEMENTAL BENEFITS**

Per hour paid:

Journeyworker:

Striping Machine Operator: \$ 10.03

Linerman Thermoplastic: 10.03

**OVERTIME PAY**

See (B, B2, E2, F, S) on OVERTIME PAGE

**HOLIDAY**

Paid: See (5, 20) on HOLIDAY PAGE

Overtime: See (5, 20) on HOLIDAY PAGE

**REGISTERED APPRENTICES**

One (1) year terms at the following wage rates:

1st Term:	\$ 15.00
2nd Term:	18.92
3rd Term:	25.22

Supplemental Benefits per hour:



1st term:	\$ 9.16
2nd Term:	10.03
3rd Term:	10.03

8-1456-LS

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**Painter - Metal Polisher****11/01/2022**

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**JOB DESCRIPTION** Painter - Metal Polisher**DISTRICT** 8**ENTIRE COUNTIES**

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

**WAGES**

	07/01/2022
Metal Polisher	\$ 37.78
Metal Polisher*	38.80
Metal Polisher**	41.78

\*Note: Applies on New Construction & complete renovation

\*\* Note: Applies when working on scaffolds over 34 feet.

**SUPPLEMENTAL BENEFITS**

Per Hour:	07/01/2022
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Journeyworker:	
All classification	\$ 11.24

**OVERTIME PAY**

See (B, E, P, T) on OVERTIME PAGE

**HOLIDAY**

Paid:	See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime:	See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

**REGISTERED APPRENTICES**

Wages per hour:

One (1) year term at the following wage rates:

	07/01/2022
1st year	\$ 16.00
2nd year	17.00
3rd year	18.00
1st year*	\$ 16.39
2nd year*	17.44
3rd year*	18.54
1st year**	\$ 18.50
2nd year**	19.50
3rd year**	20.50

\*Note: Applies on New Construction & complete renovation

\*\* Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:  
Per hour:

1st year	\$ 7.99
2nd year	7.99
3rd year	7.99

8-8A/28A-MP

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**Plumber****11/01/2022**

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**JOB DESCRIPTION** Plumber**DISTRICT** 11**ENTIRE COUNTIES**



Orange, Rockland, Sullivan

### PARTIAL COUNTIES

Ulster: Only the Townships of Plattekill, Marlboro, Wawarsing, and Shawangunk (except for Wallkill and Shawangunk Prisons).

### WAGES

REFRIGERATION: For commercial and industrial refrigeration which means service, maintenance, and installation work where the combined compressor tonnage does not exceed 40 tons.

AIR CONDITIONING: Air conditioning to be installed that is water cooled shall not exceed 25 tons. This will include the piping of the component system and erection of water tower. Air conditioning that is air cooled shall not exceed 50 tons.

WAGES: (per hour)

	07/01/2022	05/01/2023	05/01/2024	05/01/2025
		Additional	Additional	Additional
Plumber	\$ 37.34	\$ 2.25*	\$ 2.25*	\$ 2.50*

\*to be allocated at a later date

Star Certification: an additional \$ 1.00 per hour over scale will be paid to all those who have Star Certification.

Shift Differential: When mandated by the governmental agency, an additional 15% premium will be paid for irregular work day or for 2nd and 3rd shift.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyman

\$ 35.07\*

\*For overtime or shift differential work, \$0.10 is paid at straight time, the remaining balance is paid at the same premium as the wages.

### OVERTIME PAY

See (B, G, P, \*V) on OVERTIME PAGE

\* A portion of the benefit amount is subject to the V code for overtime and shift differential work.

### HOLIDAY

Paid: See (5, 6, 13, 15, 25) on HOLIDAY PAGE

Overtime: See (5, 6, 13, 15, 25) on HOLIDAY PAGE

### REGISTERED APPRENTICES

(1)year terms at the following wage.

	07/01/2022
1st term	\$ 16.81
2nd term	20.54
3rd term	24.28
4th term	28.01
5th term	31.74

Supplemental Benefits per hour:

Apprentices

1st term	\$ 15.86*
2nd term	19.36*
3rd term	22.85*
4th term	26.36*
5th term	29.85*

\*For overtime or shift differential work, \$0.10 is paid at straight time, the remaining balance is paid at the same premium as the wages.

11-373 Refrig

### Plumber

11/01/2022

JOB DESCRIPTION Plumber

DISTRICT 11

### ENTIRE COUNTIES

Orange, Rockland, Sullivan

### PARTIAL COUNTIES

Ulster: Only the Townships of Plattekill, Marlboro, Wawarsing, and Shawangunk (except for Wallkill and Shawangunk Prisons).

### WAGES

WAGES:(per hour)	07/01/2022	05/01/2023	05/01/2024
		Additional	Additional
Plumber/Steamfitter	\$ 49.45	\$ 2.25*	\$ 2.25*



\*to be allocated at a later date

Note: For all work 40-60 feet above ground add \$ 0.25 per hour, over 60 feet add \$ 0.50 per hour.

Shift Differential: When mandated by the governmental agency, an additional 15% premium will be paid for irregular work day or for 2nd and 3rd shift.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyman \$ 43.07\*

\*For overtime or shift differential work, \$0.10 is paid at straight time, the remaining balance is paid at the same premium as the wages.

### OVERTIME PAY

See (B, E, Q, \*V) on OVERTIME PAGE

\* A portion of the benefit amount is subject to the V code for overtime and shift differential work.

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

When a holiday falls on a Saturday, the day prior shall be considered and recognized as the holiday. When a holiday falls on a Sunday, the day proceeding shall be considered and recognized as the holiday to be observed.

### REGISTERED APPRENTICES

( 1 ) year terms at the following wages.

07/01/2022

1st term	\$ 17.31
2nd term	22.26
3rd term	27.20
4th term	32.15
5th term	39.56

Supplemental Benefits per hour:

1st term	\$ 15.16*
2nd term	19.45*
3rd term	23.74*
4th term	28.04*
5th term	34.47*

\*For overtime or shift differential work, \$0.10 is paid at straight time, the remaining balance is paid at the same premium as the wages.

11-373 SF

## Plumber

11/01/2022

**JOB DESCRIPTION** Plumber

**DISTRICT** 8

### ENTIRE COUNTIES

Dutchess

### PARTIAL COUNTIES

Delaware: Only the Townships of Middletown and Roxbury.

Ulster: Entire county (including Wallkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

### WAGES

Per hour: 07/01/2022

Plumber &  
Steamfitter \$ 54.83

### SHIFT WORK:

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

### SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker: \$ 40.98

### OVERTIME PAY

See (B, E, E2, Q, V) on OVERTIME PAGE



## HOLIDAY

Paid: See (1) on HOLIDAY PAGE  
Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

## REGISTERED APPRENTICES

(1)year terms at the following rates:

07/01/2022

1st year	\$ 20.90
2nd year	28.91
3rd year	33.54
4th year	40.25
5th year	46.38

Supplemental Benefits per hour:

1st year	\$ 17.38
2nd year	22.21
3rd year	25.79
4th year	29.79
5th year	32.83

8-21.2-SF

## Plumber - HVAC / Service

11/01/2022

**JOB DESCRIPTION** Plumber - HVAC / Service

**DISTRICT** 8

## ENTIRE COUNTIES

Dutchess, Putnam, Westchester

## PARTIAL COUNTIES

Delaware: Only the townships of Middletown and Roxbury

Ulster: Entire County(including Wallkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

## WAGES

Per hour: 07/01/2022

HVAC Service \$ 41.68  
+ \$ 4.32\*

\*Note: This portion of wage is not subject to overtime premium.

## SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker HVAC Service  
\$ 27.79

## OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

## HOLIDAY

Paid: See (5, 6, 16, 25) on HOLIDAY PAGE  
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

## REGISTERED APPRENTICES

HVAC SERVICE

(1)year terms at the following wages:

1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
\$ 18.87	\$ 22.36	\$ 27.91	\$ 34.33	\$ 37.25
+\$2.37*	+\$2.67*	+\$3.22*	+\$3.84*	+\$4.07*

\*Note: This portion of wage is not subject to overtime premium.

Supplemental Benefits per hour:

Apprentices 07/01/2022

1st term \$ 20.30



2nd term	21.62
3rd term	23.07
4th term	25.05
5th term	26.47

8-21.1&2-SF/Re/AC

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**Plumber - Jobbing & Alterations****11/01/2022**

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**JOB DESCRIPTION** Plumber - Jobbing & Alterations**DISTRICT** 8**ENTIRE COUNTIES**

Dutchess, Putnam, Westchester

**PARTIAL COUNTIES**

Ulster: Entire county (including Wallkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

**WAGES**

Per hour:	07/01/2022
Journeyworker:	\$ 46.79

Repairs, replacements and alteration work is any repair or replacement of a present plumbing system that does not change existing roughing or water supply lines.

**SHIFT WORK:**

When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

**SUPPLEMENTAL BENEFITS**

Per hour:	
Journeyworker	\$ 33.56

**OVERTIME PAY**

See (B, \*E, E2, Q, V) on OVERTIME PAGE

\*When used as a make-up day, hours after 8 on Saturday shall be paid at time and one half.

**HOLIDAY**

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 8, 16, 25) on HOLIDAY PAGE

**REGISTERED APPRENTICES**

(1) year terms at the following wages:

1st year	\$ 20.25
2nd year	22.48
3rd year	24.40
4th year	34.25
5th year	36.19

Supplemental Benefits per hour:

1st year	\$ 10.98
2nd year	12.92
3rd year	16.89
4th year	22.82
5th year	24.77

8-21.3-J&A

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**Roofer****11/01/2022**

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**JOB DESCRIPTION** Roofer**DISTRICT** 9**ENTIRE COUNTIES**

Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

**WAGES**

Per Hour:	07/01/2022	05/01/2023
		Additional
Roofer/Waterproofers	\$ 45.25	\$ 2.00
	+ \$7.00*	



\* This portion is not subjected to overtime premiums.

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

### SUPPLEMENTAL BENEFITS

Per Hour: \$ 30.62

### OVERTIME PAY

See (B, H) on OVERTIME PAGE

Note: An observed holiday that falls on a Sunday will be observed the following Monday.

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

### REGISTERED APPRENTICES

( 1 ) year term

1st	2nd	3rd	4th
\$ 15.84	\$ 22.63	\$ 27.15	\$ 33.94
	+ 3.50*	+ 4.20*	+ 5.26*

Supplements:

1st	2nd	3rd	4th
\$ 3.88	\$ 15.48	\$ 18.50	\$ 23.04

\* This portion is not subjected to overtime premiums.

9-8R

### Sheetmetal Worker

11/01/2022

**JOB DESCRIPTION** Sheetmetal Worker

**DISTRICT** 8

### ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

### WAGES

07/01/2022

SheetMetal Worker \$ 45.25  
+ 3.52\*

\*This portion is not subject to overtime premiums.

### SHIFT WORK

For all NYS D.O.T. and other Governmental mandated off-shift work:

10% increase for additional shifts for a minimum of five (5) days

### SUPPLEMENTAL BENEFITS

Journeyworker \$ 45.20

### OVERTIME PAY

OVERTIME: See ( B, E, Q, ) on OVERTIME PAGE.

### HOLIDAY

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 15, 16, 23) on HOLIDAY PAGE

### REGISTERED APPRENTICES

1st	2nd	3rd	4th	5th	6th	7th	8th
\$ 16.79	\$ 18.88	\$ 21.00	\$ 23.08	\$ 25.20	\$ 27.30	\$ 29.89	\$ 32.43
+ 1.41*	+ 1.58*	+ 1.76*	+ 1.94*	+ 2.11*	+ 2.29*	+ 2.46*	+ 2.64*

\*This portion is not subject to overtime premiums.

Supplemental Benefits per hour:

### Apprentices

1st term	\$ 19.37
2nd term	21.81
3rd term	24.21
4th term	26.65
5th term	29.06
6th term	31.48
7th term	33.42
8th term	35.40

8-38



**Sprinkler Fitter**

**11/01/2022**

**JOB DESCRIPTION** Sprinkler Fitter

**DISTRICT 1**

**ENTIRE COUNTIES**

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

**WAGES**

Per hour 07/01/2022

Sprinkler \$ 48.98  
Fitter

**SUPPLEMENTAL BENEFITS**

Per hour

Journey person \$ 29.13

**OVERTIME PAY**

See (B, E, Q) on OVERTIME PAGE

**HOLIDAY**

Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6) on HOLIDAY PAGE

Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

**REGISTERED APPRENTICES**

Wages per hour

One Half Year terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 23.70	\$ 26.34	\$ 28.72	\$ 31.35	\$ 33.99	\$ 36.62	\$ 39.25	\$ 41.89	\$ 44.52	\$ 47.15

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
\$ 8.37	\$ 8.37	\$ 19.76	\$ 19.76	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01	\$ 20.01

1-669.2

**Teamster - Building / Heavy&Highway**

**11/01/2022**

**JOB DESCRIPTION** Teamster - Building / Heavy&Highway

**DISTRICT 11**

**ENTIRE COUNTIES**

Dutchess, Orange, Rockland, Sullivan, Ulster

**WAGES**

GROUP 1: LeTourneau Tractors, Double Barrel Euclids, Athney Wagons and similar equipment (except when hooked to scrapers), I-Beam and Pole Trailers, Tire Trucks, Tractor and Trailers with 5 axles and over, Articulated Back Dumps and Road Oil Distributors, Articulated Water Trucks and Fuel Trucks/Trailers, positions requiring a HAZMAT CDL endorsement.

GROUP 1A: Drivers on detachable Gooseneck Low Bed Trailers rated over 35 tons.

GROUP 2: All equipment 25 yards and up to and including 30 yard bodies and cable Dump Trailers and Powder and Dynamite Trucks.

GROUP 3: All Equipment up to and including 24-yard bodies, Mixer Trucks, Dump Crete Trucks and similar types of equipment, Fuel Trucks, Batch Trucks and all other Tractor Trailers, Hi-Rail Truck.

GROUP 4: Tri-Axles, Ten Wheelers, Grease Trucks, Tillerman, Pattern Trucks, Attenuator Trucks, Water Trucks, Bus.

GROUP 5: Straight Trucks.

GROUP 6: Pick-up Trucks for hauling materials and parts, and Escort Man over-the-road.

WAGES: (per hour) 07/01/2022 05/01/2023

GROUP 1	\$ 34.28	\$ 34.58
GROUP 1A	35.42	35.72
GROUP 2	33.72	34.02
GROUP 3	33.50	33.80



GROUP 4	33.39	33.69
GROUP 5	33.27	33.57
GROUP 6	33.27	33.57

**NOTE ADDITIONAL PREMIUMS:**

- On projects requiring an irregular shift a premium of 10% will be paid on wages. The premium will be paid for off-shift or irregular shift work when mandated by Governmental Agency.
- Employees engaged in hazardous/toxic waste removal, on a State or Federally designated hazardous/toxic waste site, where the employee comes in contact with hazardous/toxic waste material and when personal protective equipment is required for respiratory, skin, or eye protection, the employee shall receive an additional 20% premium above the hourly wage.

Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day.  
NOTE - In order to use the '4 Day/10 Hour Work schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule,' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 is not submitted you may be liable for overtime payments for work over 8 hours per day.

**SUPPLEMENTAL BENEFITS**

Per hour:		
First 40 hours	\$ 42.16	\$ 44.59
Over 40 hours	34.76	36.99

**OVERTIME PAY**

See (\*B, E, \*\*E2, \*\*\*P, X) on OVERTIME PAGE

\*Holidays worked Monday through Friday receive Double Time (2x) after 8 hours.

\*\*Makeup day limited to the employees who were working on the site that week.

\*\*\*Sunday Holidays are paid at a rate of double time and one half (2.5x) for all hours worked.

**HOLIDAY**

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

Overtime: See (\*1) on HOLIDAY PAGE

- Any employee working two (2) days in any calendar week during which a holiday occurs shall receive a days pay for each holiday occurring during said week. This provision shall also apply if a holiday falls on a Saturday or Sunday.

\*See OVERTIME PAY section for when additional premium is applicable on Holiday hours worked.

11-445B/HH

**Teamster - Delivery - Building / Heavy&Highway**

**11/01/2022**

**JOB DESCRIPTION** Teamster - Delivery - Building / Heavy&Highway

**DISTRICT** 11

**ENTIRE COUNTIES**

Dutchess, Orange, Rockland, Sullivan, Ulster

**WAGES**

Group 1	Tractor Trailer Drivers
Group 2	Tri- Axle
Group 3	Senior Teamster

Wages:	07/01/2022	05/01/2023
Group 1	\$ 33.20	\$ 33.70
Group 2	29.20	29.70
Group 3	34.20	34.70

Hazardous/Toxic Waste Removal additional 20% when personal protective equipment is required

**SUPPLEMENTAL BENEFITS**

Per hour paid:		
First 40 hours	\$ 31.50	\$ 32.30
Over 40 hours	0.00	0.00

**OVERTIME PAY**

See (B, E, Q, X) on OVERTIME PAGE

**HOLIDAY**

Paid: See (5, 13, 15, 16, 20, 22, 25, 26) on HOLIDAY PAGE

Overtime: See (5, 13, 15, 16, 20, 22, 25, 26) on HOLIDAY PAGE

- Employee must work either the scheduled day of work before or the scheduled day of work after the holiday in the workweek.

- Any employee working one (1) day in the calendar week during which a holiday occurs shall receive a day's pay for each holiday occurring during said week. This provision shall also apply if a holiday falls on a Saturday.

- When any of the recognized holidays occur on Sunday and are celebrated any day before or after the holiday Sunday, such days shall be considered as the holiday and paid for as such.

11-445 B/HH Delivery



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**Welder****11/01/2022**

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**JOB DESCRIPTION** Welder**DISTRICT 1****ENTIRE COUNTIES**

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuylar, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

**WAGES**

Per hour 07/01/2022

Welder: To be paid the same rate of the mechanic performing the work.\*

\*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

**OVERTIME PAY****HOLIDAY**

1-As Per Trade



## Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

- ( AA ) Time and one half of the hourly rate after 7 and one half hours per day
- ( A ) Time and one half of the hourly rate after 7 hours per day
- ( B ) Time and one half of the hourly rate after 8 hours per day
- ( B1 ) Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday.  
Double the hourly rate for all additional hours
- ( B2 ) Time and one half of the hourly rate after 40 hours per week
- ( C ) Double the hourly rate after 7 hours per day
- ( C1 ) Double the hourly rate after 7 and one half hours per day
- ( D ) Double the hourly rate after 8 hours per day
- ( D1 ) Double the hourly rate after 9 hours per day
- ( E ) Time and one half of the hourly rate on Saturday
- ( E1 ) Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
- ( E2 ) Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- ( E3 ) Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
- ( E4 ) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
- ( E5 ) Double time after 8 hours on Saturdays
- ( F ) Time and one half of the hourly rate on Saturday and Sunday
- ( G ) Time and one half of the hourly rate on Saturday and Holidays
- ( H ) Time and one half of the hourly rate on Saturday, Sunday, and Holidays
- ( I ) Time and one half of the hourly rate on Sunday
- ( J ) Time and one half of the hourly rate on Sunday and Holidays
- ( K ) Time and one half of the hourly rate on Holidays
- ( L ) Double the hourly rate on Saturday
- ( M ) Double the hourly rate on Saturday and Sunday
- ( N ) Double the hourly rate on Saturday and Holidays
- ( O ) Double the hourly rate on Saturday, Sunday, and Holidays
- ( P ) Double the hourly rate on Sunday
- ( Q ) Double the hourly rate on Sunday and Holidays
- ( R ) Double the hourly rate on Holidays
- ( S ) Two and one half times the hourly rate for Holidays



- ( S1 ) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
- ( T ) Triple the hourly rate for Holidays
- ( U ) Four times the hourly rate for Holidays
- ( V ) Including benefits at SAME PREMIUM as shown for overtime
- ( W ) Time and one half for benefits on all overtime hours.
- ( X ) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)



## Holiday Codes

### PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

### OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

- ( 1 ) None
- ( 2 ) Labor Day
- ( 3 ) Memorial Day and Labor Day
- ( 4 ) Memorial Day and July 4th
- ( 5 ) Memorial Day, July 4th, and Labor Day
- ( 6 ) New Year's, Thanksgiving, and Christmas
- ( 7 ) Lincoln's Birthday, Washington's Birthday, and Veterans Day
- ( 8 ) Good Friday
- ( 9 ) Lincoln's Birthday
- ( 10 ) Washington's Birthday
- ( 11 ) Columbus Day
- ( 12 ) Election Day
- ( 13 ) Presidential Election Day
- ( 14 ) 1/2 Day on Presidential Election Day
- ( 15 ) Veterans Day
- ( 16 ) Day after Thanksgiving
- ( 17 ) July 4th
- ( 18 ) 1/2 Day before Christmas
- ( 19 ) 1/2 Day before New Years
- ( 20 ) Thanksgiving
- ( 21 ) New Year's Day
- ( 22 ) Christmas
- ( 23 ) Day before Christmas
- ( 24 ) Day before New Year's
- ( 25 ) Presidents' Day
- ( 26 ) Martin Luther King, Jr. Day
- ( 27 ) Memorial Day
- ( 28 ) Easter Sunday



( 29 )      Juneteenth





New York State Department of Labor - Bureau of Public Work  
State Office Building Campus  
Building 12 - Room 130  
Albany, New York 12240

**REQUEST FOR WAGE AND SUPPLEMENT INFORMATION**

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

**This Form Must Be Typed**

Submitted By:

(Check Only One)

☐

Contracting Agency

☐

Architect or Engineering Firm

☐

Public Work District Office

Date:

**A. Public Work Contract to be let by:** (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone: ( )

Fax: ( )

E-Mail:

2. NY State Units (see Item 5)

☐ 01 DOT

☐ 02 OGS

☐ 03 Dormitory Authority

☐ 04 State University  
Construction Fund

☐ 05 Mental Hygiene  
Facilities Corp.

☐ 06 OTHER N.Y. STATE UNIT

☐ 07 City

☐ 08 Local School District

☐ 09 Special Local District, i.e.,  
Fire, Sewer, Water District

☐ 10 Village

☐ 11 Town

☐ 12 County

☐ 13 Other Non-N.Y. State  
(Describe)

3. SEND REPLY TO ☐ (check if new or change)  
Name and complete address:

Telephone:( )

Fax: ( )

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR  
THIS PROJECT :

OFFICE USE ONLY

**B. PROJECT PARTICULARS**

5. Project Title \_\_\_\_\_

Description of Work \_\_\_\_\_

Contract Identification Number \_\_\_\_\_

Note: For NYS units, the OSC Contract No. \_\_\_\_\_

6. Location of Project:  
Location on Site \_\_\_\_\_

Route No/Street Address \_\_\_\_\_

Village or City \_\_\_\_\_

Town \_\_\_\_\_

County \_\_\_\_\_

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance with the Wicks Law involving separate bidding?

YES ☐ NO ☐

10. Name and Title of Requester

Signature





NEW YORK STATE DEPARTMENT OF LABOR  
Bureau of Public Work - Debarment List

**LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE  
AWARDED ANY PUBLIC WORK CONTRACT**

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

**Debarment Database:** To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: <https://applications.labor.ny.gov/EDList/searchPage.do>

**For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322**







**NYSDOL Bureau of Public Work Debarment List    10/21/2022**

**Article 8**

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****4018	ADIRONDACK BUILDING RESTORATION INC.		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC	*****6775	ADVENTURE MASONRY CORP.		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC		AGOSTINHO TOME		405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL		ANITA SALERNO		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL		ANTONIO ESTIVEZ		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC	*****2591	AVI 212 INC.		260 CROPEY AVENUE APT 11GBROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	NYC		BALWINDER SINGH		421 HUDSON ST SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	NYC	*****8416	BEAM CONSTRUCTION, INC.		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		BIAGIO CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BOGDAN MARKOVSKI		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL		BRUCE P. NASH JR.		5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL	*****0225	C&D LAFACE CONSTRUCTION, INC.		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025



**NYSDOL Bureau of Public Work Debarment List    10/21/2022**

**Article 8**

DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL		CANTISANI & ASSOCIATES LTD		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CANTISANI HOLDING LLC			06/12/2018	06/12/2023
DOL	DOL		CARMEN RACHETTA		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	02/03/2025
DOL	DOL		CARMENA RACHETTA		8531 OSWEGO ROAD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****3812	CARMODY "2" INC			06/12/2018	06/12/2023
DOL	DOL	*****1143	CARMODY BUILDING CORP	CARMODY CONTRACTING AND CARMODY CONTRACTING CORP.	442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY CONCRETE CORPORATION			06/12/2018	06/12/2023
DOL	DOL		CARMODY ENTERPRISES, LTD.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY INC		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3812	CARMODY INDUSTRIES INC			06/12/2018	06/12/2023
DOL	DOL		CARMODY MAINTENANCE CORPORATION		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		CARMODY MASONRY CORP		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	AG		CESAR J. AGUDELO		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC		CHARLES ZAHRAKKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL		CHRISTOPHER J MAINI		19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		CHRISTOPHER PAPASTEFANO A/K/A CHRIS PAPASTEFANO		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****1927	CONSTRUCTION PARTS WAREHOUSE, INC.	CPW	5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****2524	CSI ELECTRICAL & MECHANICAL INC		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	AG		DEBRA MARTINEZ		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		DOMENICO LAFACE		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025



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DOL	DOL		EAST COAST PAVING		2238 BAKER RD GILLET PA 16923	03/12/2018	03/12/2023
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	NYC	*****5917	EPOCH ELECTRICAL, INC		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2024
DOL	DOL		FAIGY LOWINGER		11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL		FRANK BENEDETTO		19 CATLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL	*****4722	FRANK BENEDETTO AND CHRISTOPHER J MAINI	B & M CONCRETE	19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	NYC		FRANK MAINI		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		GABRIEL FRASSETTI			04/10/2019	04/10/2024
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		GEOFF CORLETT		415 FLAGGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		GIOVANNI LAFACE		8531 OSWEGO RD BALDWINVILLE NY 13027	02/03/2020	01/09/2023
DOL	NYC	*****3164	GLOBE GATES INC	GLOBAL OVERHEAD DOORS	405 BARRETTO ST BRONX NY 10474	05/31/2018	05/31/2023
DOL	DOL		GREGORY S. OLSON		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC	*****3228	HEIGHTS ELEVATOR CORP.		1766 FRONT ST YORKTOWN HEIGHTS NY 10598	01/17/2018	01/17/2023
DOL	DOL	*****5131	INTEGRITY MASONRY, INC.	M&R CONCRETE	722 8TH AVE WATERVLIET NY 12189	06/05/2018	06/05/2023
DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
DOL	DOL	*****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.A. HIRES CADWALLADER		P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JAMES C. DELGIACCO		722 8TH AVE WATERVLIET NY 12189	06/05/2018	06/05/2023
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JAMES LIACONE		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JAMES RACHEL		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****5368	JCH MASONRY & LANDSCAPING INC.		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024



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DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	AG		JOHN ANTHONY MASSINO		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JOHN F. CADWALLADER		200 LATTA BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4612	JOHN F. CADWALLADER, INC.	THE GLASS COMPANY	P.O BOX 100 200 LATTA BROOK PARKHORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		JOHN LUCIANO			05/14/2018	05/14/2023
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	AG	*****0600	JOHNCO CONTRACTING, INC.		36-49 204TH STREET BAYSIDE NY 11372	02/07/2018	02/07/2023
DOL	DOL		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JORI PEDERSEN		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		JOSE CHUCHUCA		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	NYC		JOSEPH MARTINO		1535 RICHMOND AVENUE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	DOL		JOY MARTIN		2404 DELAWARE AVE NIGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KATIE BURDICK		2238 BAKER RD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****3490	L & M CONSTRUCTION/DRYWALL INC.		1079 YONKERS AVE YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LAVERN GLAVE		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DA	*****4460	LONG ISLAND GLASS & STOREFRONTS, LLC		4 MANHASSET TRL RIDGE NY 11961	09/06/2018	09/06/2023
DOL	AG	*****4216	LOTUS-C CORP.		81-06 34TH AVENUE APT. 6EJACKSON HEIGHTS NY 11372	02/07/2018	02/07/2023
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026



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DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	NYC		MAREK FABIJANOWSKI		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL		MASONRY CONSTRUCTION, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL	*****3333	MASONRY INDUSTRIES, INC.		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	NYC		MATINA KARAGIANNIS		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2023
DOL	DOL		MATTHEW P. KILGORE		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	DOL		MAURICE GAWENO		442 ARMONK RD MOUNT KISCO NY 10549	06/12/2018	06/12/2023
DOL	DOL		MICHAEL LENIHAN		1079 YONKERS AVE UNIT 4YONKERS NY 10704	08/07/2018	08/07/2023
DOL	AG		MICHAEL RIGLIETTI		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	DOL	*****4829	MILESTONE ENVIRONMENTAL CORPORATION		704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751	04/10/2019	04/10/2024
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	AG		MSR ELECTRICAL CONSTRUCTION CORP.		31 BAY ST BROOKLYN NY 11231	03/28/2018	03/28/2023
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DA	*****9786	NATIONAL INSULATION & GC CORP		180 MILLER PLACE HICKSVILLE NY 11801	12/12/2018	12/12/2023
DOL	DOL	*****3684	NATIONAL LAWN SPRINKLERS, INC.		645 N BROADWAY WHITE PLAINS NY 10603	05/14/2018	05/14/2023
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTI ON, INC.	444 SCHANTZ ROAD ALLEN TOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL	*****1845	OC ERECTERS, LLC A/K/A OC ERECTERS OF NY INC.		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	01/30/2018	01/30/2023
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	AG	*****7015	RCM PAINTING INC.		69-06 GRAND AVENUE 2ND FLOORMASPETH NY 11378	02/07/2018	02/07/2023
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025



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DOL	DOL		REGINALD WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL	*****9148	RICH T CONSTRUCTION		107 WILLOW WOOD LANE CAMILLUS NY 13031	11/13/2018	11/13/2023
DOL	DOL		RICHARD MACONE		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL	*****9148	RICHARD TIMIAN	RICH T CONSTRUCTI ON	108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	11/13/2018	11/13/2023
DOL	DOL		ROBBYE BISSEAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		RODERICK PUGH		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL	*****4880	RODERICK PUGH CONSTRUCTION INC.		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	01/30/2018	01/30/2023
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		ROSEANNE CANTISANI			06/12/2018	06/12/2023
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL	*****1365	S & L PAINTING, INC.		11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL	*****7730	S C MARTIN GROUP INC.		2404 DELAWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	NYC	*****6597	SHAIRA CONSTRUCTION CORP.		421 HUDSON STREET SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	DOL	*****1961	SHANE BURDICK	CENTRAL TRAFFIC CONTROL, LLC.	2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE BURDICK		2238 BAKER ROAD GILLET PA 16923	03/12/2018	03/12/2023
DOL	DOL		SHANE NOLAN		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		SHULEM LOWINGER		11 MOUNTAIN ROAD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024



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DOL	DOL	*****0816	SOLAR ARRAY SOLUTIONS, LLC		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL		STEVE TATE		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		STEVEN MARTIN		2404 DELWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL	*****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****1060	SUNN ENTERPRISES GROUP, LLC		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL	*****8209	SYRACUSE SCALES, INC.		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL		TALAILA OCAMPA		1207 SW 48TH TERRACE DEERFIELD BEACH FL 33442	01/16/2018	01/16/2023
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL	*****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		TEST		P.O BOX 123 ALBANY NY 12204	05/20/2020	05/20/2025
DOL	DOL	*****6789	TEST1000		P.O BOX 123 ALBANY NY 12044	03/01/2021	03/01/2026
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DA	*****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6392	V.M.K CORP.		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VICTOR ALICANTI		42-32 235TH ST DOUGLSTON NY 11363	01/14/2019	01/14/2024
DOL	NYC		VIKTAR PATONICH		2630 CROSEY AVE BROOKLYN NY 11214	10/30/2018	10/30/2023



**NYSDOL Bureau of Public Work Debarment List    10/21/2022**

**Article 8**

DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC		VITO GARGANO		1535 RICHMOND AVE STATEN ISLAND NY 10314	12/13/2017	12/13/2022
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		WHITE PLAINS CARPENTRY CORP		442 ARMONK RD	06/12/2018	06/12/2023
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	*****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL	*****4043	WINDSHIELD INSTALLATION NETWORK, INC.		200 LATTA BROOK PARK HORSEHEADS NY 14845	03/08/2018	03/08/2023
DOL	DOL	*****4730	XGD SYSTEMS, LLC	TDI GOLF	415 GLAGE AVE #302STUART FL 34994	10/31/2018	10/31/2023



## **SECTION 01 08 00 - GENERAL COMMISSIONING REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Owner's Project Requirements and Basis-of-Design documentation are included by reference for information only.

#### **1.2 SUMMARY**

##### **A. Section Includes:**

1. General requirements for coordinating and scheduling commissioning.
2. Commissioning meetings.
3. Commissioning reports.
4. Test equipment, instrumentation, and tools (including, but not limited to, proprietary test equipment, instrumentation, and tools) required to perform tests.
5. Use of test equipment, instrumentation, and tools for commissioning.
6. Construction checklist requirements, including, but not limited to, installation checks, startup, performance tests, and performance test demonstration.
7. Commissioning tests and commissioning test demonstration.
8. Adjusting, verifying, and documenting identified systems and assemblies.
9. Work to correct commissioning issues.
10. Work to repeat tests when equipment and systems fail acceptance criteria.

##### **B. Related Requirements:**

1. Section 01 33 00 "Submittal Procedures" for submittal procedures requirements for commissioning.
2. Section 01 77 00 "Closeout Procedures" for certificate of Construction Phase Commissioning Completion submittal requirements.
3. Section 01 78 23 "Operation and Maintenance Data" for preliminary operation and maintenance data submittal.
4. Section 23 08 00 "Commissioning of HVAC" for technical commissioning requirements for HVAC systems.
5. Section 26 08 00 "Commissioning of Electrical" for technical commissioning requirements for Electrical systems.
6. Individual Technical Specifications and Drawings: Equipment and systems design and installation, startup, field quality-control testing, and additional requirements indicated in the Contract Documents.



### 1.3 DEFINITIONS

- A. Acceptance Criteria: Threshold of acceptable work quality or performance specified for a commissioning activity, including, but not limited to, construction checklists, performance tests, performance test demonstrations, commissioning tests and commissioning test demonstrations.
- B. Basis-of-Design Document: A document prepared by Owner, Architect, or Commissioning Authority that records concepts, calculations, decisions, and product selections used to comply with Owner's Project Requirements and to suit applicable regulatory requirements, standards, and guidelines.
- C. Commissioning Authority: An entity engaged by Owner, and identified in Section 011000 "Summary," to evaluate Commissioning-Process Work.
- D. Commissioning Plan: A document, prepared by Commissioning Authority, that outlines the organization, schedule, allocation of resources, and documentation requirements of commissioning.
- E. Commissioning: A quality-focused process for verifying and documenting that the facility and all of its systems and assemblies are planned, designed, installed, and tested to comply with Owner's Project Requirements. The requirements specified here are limited to the construction phase commissioning activities. The scope of commissioning is defined in Section 011200 "Multiple Contract Summary."
- F. Construction Phase Commissioning Completion: The stage of completion and acceptance of commissioning when resolution of deficient conditions and issues discovered during commissioning and retesting until acceptable results are obtained has been accomplished. Owner will establish in writing the date Construction Phase Commissioning Completion is achieved. See Section 017700 "Closeout Procedures" for certificate of Construction Phase Commissioning Completion submittal requirements.
  - 1. Commissioning is complete when the work specified in this Section and related Sections has been completed and accepted, including, but not limited to, the following:
    - a. Completion of tests and acceptance of test results.
    - b. Resolution of issues, as verified by retests performed and documented with acceptance of retest results.
    - c. Comply with requirements in Section 017900 "Demonstration and Training."
    - d. Completion and acceptance of submittals and reports.
- G. Owner's Project Requirements: A document written by Owner, Architect, or Commissioning Authority that details the functional requirements of a project and the expectations of how it will be used and operated, including Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- H. Owner's Witness: Commissioning Authority, Owner's Project Manager, or Architect-designated witness authorized to authenticate test demonstration data and to sign completed test data forms.



- I. "Systems," "Assemblies," "Subsystems," "Equipment," and "Components": Where these terms are used together or separately, they shall mean "as-built" systems, assemblies, subsystems, equipment, and components.
- J. Test: Performance tests, performance test demonstrations, commissioning tests, and commissioning test demonstrations.
- K. Sampling Procedures and Tables for Inspection by Attributes: As defined in ASQ Z1.4.

#### 1.4 COMPENSATION

- A. Should Architect, Commissioning Authority, other Owner's witness, or Owner's staff perform additional services or incur additional expenses due to actions of Contractor listed below, compensate Owner for such additional services and expenses.
  - 1. Failure to provide timely notice of commissioning activities schedule changes.
  - 2. Failure to meet acceptance criteria for test demonstrations.
- B. Contractor shall compensate Owner for such additional services and expenses at the rate of \$175.00 per labor hour plus the current per mile rate for personnel travelling plus per diem allowances for meals and lodging according to current U.S. General Services Administration (GSA) Per Diem Rates.

#### 1.5 COMMISSIONING TEAM

- A. Members Appointed by Contractor(s):
  - 1. Commissioning Coordinator: A person or entity employed by Contractor to manage, schedule, and coordinate commissioning.
  - 2. Project superintendent and other employees that Contractor may deem appropriate for a particular portion of the commissioning.
  - 3. Subcontractors, installers, suppliers, and specialists that Contractor may deem appropriate for a particular portion of the commissioning.
  - 4. Appointed team members shall have the authority to act on behalf of the entity they represent.
- B. Members Appointed by Owner:
  - 1. Commissioning Authority, plus consultants that Commissioning Authority may deem appropriate for a particular portion of the commissioning.
  - 2. Owner representative(s), facility operations and maintenance personnel, plus other employees, separate contractors, and consultants that Owner may deem appropriate for a particular portion of the commissioning.
  - 3. Architect / Engineer, plus employees and consultants that Architect may deem appropriate for a particular portion of the commissioning.



## 1.6 SUBMITTALS

- A. Comply with requirements in Section 013300 "Submittal Procedures" for submittal procedures general requirements for commissioning.
- B. Commissioning Plan Information:
  - 1. List of Contractor-appointed commissioning team members to include specific personnel and subcontractors to the performance of the various commissioning requirements.
  - 2. Schedule of commissioning activities, integrated with the construction schedule. Comply with requirements in Section 013200 "Construction Progress Documentation" for construction schedule general requirements for commissioning.
  - 3. Contractor personnel and subcontractors to participate in each test.
  - 4. List of instrumentation required for each test to include identification of parties that will provide instrumentation for each test.
- C. Commissioning Coordinator Letter of Authority:
  - 1. Within 10 days after approval of Commissioning Coordinator qualifications, submit a letter of authority for Commissioning Coordinator, signed by a principal of Contractor's firm. Letter shall authorize Commissioning Coordinator to do the following:
    - a. Make inspections required for commissioning.
    - b. Coordinate, schedule, and manage commissioning of Contractor, subcontractors, and suppliers.
    - c. Obtain documentation required for commissioning from Contractor, subcontractors, and suppliers.
    - d. Report issues, delayed resolution of issues, schedule conflicts, and lack of cooperation or expertise on the part of members of the commissioning team.
- D. Commissioning Coordinator Qualification Data: For entity coordinating Contractor's commissioning activities to demonstrate their capabilities and experience.
  - 1. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- E. Commissioning schedule.
- F. Two-week look-ahead schedules.



G. List test instrumentation, equipment, and monitoring devices. Include the following information:

1. Make, model, serial number, and application for each instrument, equipment, and monitoring device.
2. Brief description of intended use.
3. Calibration record showing the following:
  - a. Calibration agency, including name and contact information.
  - b. Last date of calibration.
  - c. Range of values for which calibration is valid.
  - d. Certification of accuracy.
  - e. N.I.S.T. traceability certification for calibration equipment.
  - f. Due date of the next calibration.

H. Construction Checklists:

1. Material checks.
2. Installation checks.
3. Startup procedures, where required.

I. Test Reports:

1. Pre-Startup Report: Prior to start up of equipment or a system, submit signed, completed construction checklists.
2. Test Data Reports: At the end of each day in which tests are conducted, submit test data for tests performed.
3. Commissioning Issues Reports: Daily, at the end of each day in which tests are conducted, submit commissioning issue reports for tests for which acceptable results were not achieved.
4. Weekly Progress Report: Weekly, at the end of each week in which tests are conducted, submit a progress report.
5. Data Trend Logs: Submit data trend logs at the end of the trend log period.
6. System Alarm Logs: Daily, at the start of days following a day in which tests were performed, submit print-out of log of alarms that occurred since the last log was printed.

## 1.7 CLOSEOUT SUBMITTALS

A. Commissioning Report:

1. At Construction Phase Commissioning Completion, include the following:
  - a. Pre-startup reports.



- b. Approved test procedures.
  - c. Test data forms, completed and signed.
  - d. Progress reports.
  - e. Commissioning issues report log.
  - f. Commissioning issues reports showing resolution of issues.
  - g. Correspondence or other documents related to resolution of issues.
  - h. Other reports required by commissioning.
  - i. List unresolved issues and reasons they remain unresolved and should be exempted from the requirements for Construction Phase Commissioning Completion.
  - j. Report shall include commissioning work of Contractor.
- B. Request for Certificate of Construction Phase Commissioning Completion.
  - C. Operation and Maintenance Data: For proprietary test equipment, instrumentation, and tools to include in operation and maintenance manuals.

## 1.8 QUALITY ASSURANCE

- A. Commissioning Coordinator Qualifications:
  - 1. Certification of commissioning process expertise. The following certifications are acceptable upon receipt of information demonstrating that certification is current and in good standing. Owner reserves the right to accept or reject other certifications as evidence of qualification.
    - a. Certified Commissioning Professional, by Building Commissioning Association.
    - b. Certified Building Commissioning Professional, by Association of Energy Engineers.
    - c. Existing Building Commissioning Professional, by Association of Energy Engineers.
    - d. Commissioning Process Management Professional, by American Society of Heating, Refrigerating and Air-Conditioning Engineers.
    - e. Accredited Commissioning Process Authority Professional, by University of Wisconsin.
    - f. Accredited Commissioning Process Manager, by University of Wisconsin.
    - g. Accredited Green Commissioning Process Provider, by University of Wisconsin.
  - 2. Absent one of the certifications above, provide documented experience on at least three projects of similar scope and complexity commissioning systems of similar complexity to those contained in these documents. Provide written references from the lead Commissioning Authority of each project attesting to applicant experience, responsibilities, and proven capabilities in regards to commissioning being equal to those required to gain one of the listed certifications. Each reference must be certified in accordance with the above requirements.
- B. Calibration Agency Qualifications: Certified by The American Association of Laboratory Accreditation that the calibration agency complies with minimum requirements of ISO/IEC 17025.



## 1.9 COMMISSIONING AUTHORITY'S RESPONSIBILITIES

- A. Commissioning Authority Responsibilities: Comply with requirements in Section 011200 "Summary of Multiple Contracts."

## PART 2 - PRODUCTS

### 2.1 TEST EQUIPMENT, INSTRUMENTATION, AND TOOLS

- A. Test equipment and instrumentation required to perform the commissioning shall remain the property of Contractor unless otherwise indicated.
- B. Test equipment and instrumentation required to perform commissioning shall comply with the following criteria:
  - 1. Be manufactured for the purpose of testing and measuring tests for which they are being used and have an accuracy to test and measure system performance within the tolerances required to determine acceptable performance.
  - 2. Calibrated and certified.
    - a. Calibration performed and documented by a qualified calibration agency according to national standards applicable to the tools and instrumentation being calibrated. Calibration shall be current according to national standards or within test equipment and instrumentation manufacturer's recommended intervals, whichever is more frequent, but not less than within six months of initial use on Project. Calibration tags permanently affixed.
    - b. Repair and recalibrate test equipment and instrumentation if dismantled, dropped, or damaged since last calibrated.
  - 3. Maintain test equipment and instrumentation.
  - 4. Use test equipment and instrumentation only for testing or monitoring Work for which they are designed.

### 2.2 PROPRIETARY TEST EQUIPMENT, INSTRUMENTATION, AND TOOLS

- A. Proprietary test equipment, instrumentation, and tools are those manufactured or prescribed by tested equipment manufacturer and required for work on its equipment as a condition of equipment warranty, or as otherwise required to service, repair, adjust, calibrate, or perform work on its equipment.
  - 1. Identify proprietary test equipment, instrumentation, and tools required in the test equipment identification list submittal.
  - 2. Proprietary test equipment, instrumentation, and tools shall become the property of Owner at Substantial Completion.



## 2.3 REPORT FORMAT AND ORGANIZATION

### A. General Format and Organization:

1. Record report on compact disk.
2. Electronic Data: Portable document format (PDF); a single file with outline-organized bookmarks for major and minor tabs and tab contents itemized for specific reports.

### B. Commissioning Report:

1. Include a table of contents and an index to each test.
2. Include major tabs for each Specification Section.
3. Include minor tabs for each test.
4. Within each minor tab, include the following:
  - a. Test specification.
  - b. Pre-startup reports.
  - c. Approved test procedures.
  - d. Test data forms, completed and signed.
  - e. Commissioning issue reports, showing resolution of issues, and documentation related to resolution of issues pertaining to a single test. Group data forms, commissioning issue reports showing resolution of issues, and documentation related to resolution of issues for each test repetition together within the minor tab, in reverse chronological order (most recent on top).

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Review preliminary construction checklists and preliminary test procedures and data forms.

### 3.2 CONSTRUCTION CHECKLISTS

- A. Construction checklists cannot modify or conflict with the Contract Documents.
- B. Create construction checklists based on actual systems and equipment to be included in Project.
- C. Material Checks: Compare specified characteristics and approved submittals with materials as received. Include factory tests and other evaluations, adjustments, and tests performed prior to shipment, if applicable.



1. Services connection requirements, including configuration, size, location, and other pertinent characteristics.
  2. Included optional features.
  3. Delivery Receipt Check: Inspect and record physical condition of materials and equipment on delivery to Project site, including agreement with approved submittals, cleanliness and lack of damage.
- D. Installation Checklists: must in general document that equipment and systems are installed and started in accordance with the contract document requirements. See attachment #1 for sample checklists for a small group of representative equipment. Develop checklists in similar format with line items required designed to insure proper installation by installers:
1. Location according to Drawings and approved Shop Drawings.
  2. Configuration.
  3. Compliance with manufacturers' written installation instructions.
  4. Attachment to structure.
  5. Access clearance to allow for maintenance, service, repair, removal, and replacement without the need to disassemble or remove other equipment or building elements. Access coordinated with other building elements and equipment, including, but not limited to, ceiling and wall access panels, in a manner consistent with OSHA fall-protection regulations and safe work practices.
  6. Utility connections are of the correct characteristics, as applicable.
  7. Correct labeling and identification.
- E. Startup Checks: Verify readiness of equipment to be energized. Include manufacturer's standard startup procedures and forms.
- F. Startup: Perform and document initial operation of equipment to prove that it is installed properly and operates as intended according to manufacturer's standard startup procedures, minimum.
- G. Performance Tests:
1. Static Tests: As specified elsewhere, including, but not limited to, duct and pipe leakage tests, insulation-resistance tests, and water-penetration tests.
  2. Component Performance Tests: Tests evaluate the performance of an input or output of components under a full range of operating conditions.
  3. Equipment and Assembly Performance Tests: Test and evaluate performance of equipment and assemblies under a full range of operating conditions and loads.
  4. System Performance Tests: Test and evaluate performance of systems under a full range of operating conditions and loads.
  5. Intersystem Performance Tests: Test and evaluate the interface of different systems under a full range of operating conditions and loads.



- H. Deferred Construction Checklists: Obtain Owner approval of proposed deferral of construction checklists, including proposed schedule of completion of each deferred construction checklist, before submitting request for Certificate of Construction Phase Commissioning Completion. When approved, deferred construction checklists may be completed after date of Construction Phase Commissioning Completion. Include the following in request for Certificate of Construction Phase Commissioning Completion:
  - 1. Identify deferred construction checklists by number and title.
  - 2. Provide a target schedule for completion of deferred construction checklists.
  - 3. Written approval of proposed deferred construction checklists, including approved schedule of completion of each deferred construction checklist.
- I. Delayed Construction Checklists: Obtain Owner approval of proposed delayed construction checklists, including proposed schedule of completion of each delayed construction checklist, before submitting request for Certificate of Construction Phase Commissioning Completion. When approved, delayed construction checklists may be completed after date of Construction Phase Commissioning Completion. Include the following in request for Certificate of Construction Phase Commissioning Completion:
  - 1. Identify delayed construction checklist by construction checklist number and title.
  - 2. Provide a target schedule for completion of delayed construction checklists.
  - 3. Written approval of proposed delayed construction checklists, including approved schedule of completion of each delayed construction checklist.

### 3.3 GENERAL EXECUTION REQUIREMENTS

- A. Schedule and coordinate commissioning with the construction schedule.
- B. Perform activities identified in construction checklists, including tests, and document results of actions as construction proceeds.
- C. Perform test demonstrations for Owner's witness. Unless otherwise indicated in specific testing requirements, demonstrate tests for 100 percent of work to which the test applies.
- D. Report test data and commissioning issue resolutions.
- E. Schedule personnel to participate in and perform Commissioning-Process Work.
- F. Installing contractors' commissioning responsibilities include, but are not limited to, the following:
  - 1. Operating the equipment and systems they install during tests.
  - 2. In addition, installing contractors may be required to assist in tests of equipment and systems with which their work interfaces.



### 3.4 COMMISSIONING COORDINATOR RESPONSIBILITIES

- A. Management and Coordination: Manage, schedule, and coordinate commissioning, including, but not limited to, the following:
1. Coordinate with subcontractors on their commissioning responsibilities and activities.
  2. Obtain, assemble, and submit commissioning documentation.
  3. Attend periodic on-site commissioning meetings. Comply with requirements in Section 01 31 00 "Project Management and Coordination."
  4. Develop and maintain the commissioning schedule. Integrate commissioning schedule into the construction schedule. Update schedule at specified intervals.
  5. Review and comment on preliminary test procedures and data forms.
  6. Report inconsistencies and issues in system operations.
  7. Verify that tests have been completed and results comply with acceptance criteria, and that equipment and systems are ready before scheduling test demonstrations.
  8. Direct and coordinate test demonstrations.
  9. Coordinate witnessing of test demonstrations by Owner's witness.
  10. Coordinate and manage training. Be present during training sessions to direct video recording, present training and direct the training presentations of others. Comply with requirements in Section 017900 "Demonstration and Training."
  11. Prepare and submit specified commissioning reports.
  12. Track commissioning issues until resolution and retesting is successfully completed.
  13. Retain original records of Commissioning-Process Work, organized as required for the commissioning report. Provide Owner's representative access to these records on request.
  14. Assemble and submit commissioning report.

### 3.5 COMMISSIONING TESTING

- A. Quality Control: Construction checklists, including tests, are quality-control tools designed to improve the functional quality of Project. Test demonstrations evaluate the effectiveness of Contractor's quality-control process.
- B. Owner's witness will be present to witness commissioning work requiring the signature of an owner's witness, including, but not limited to, test demonstrations. Owner's project manager will coordinate attendance by Owner's witness with Contractor's published commissioning schedule. Owner's witness will provide no labor or materials in the commissioning work. The only function of Owner's witness will be to observe and comment on the progress, completion, and results of commissioning.



C. Construction Checklists:

1. Complete construction checklists as Work is completed.
2. Distribute construction checklists to installers before they start work.
3. Installers:
  - a. Verify installation using approved construction checklists as Work proceeds.
  - b. Complete and sign construction checklists daily for work performed during the preceding day.
4. Provide Commissioning Authority access to construction checklists.

D. Installation Compliance Issues: Record as an installation compliance issue Work found to be incomplete, inaccessible, at variance with the Contract Documents, nonfunctional, or that does not comply with construction checklists. Record installation compliance issues on the construction checklist at the time they are identified. Record corrective action and how future Work should be modified before signing off the construction checklist.

E. Pre-Startup Audit: Prior to executing startup procedures, review completed installation checks to determine readiness for startup and operation. Report conditions, which, if left uncorrected, adversely impact the ability of systems or equipment to operate satisfactorily or to comply with acceptance criteria. Prepare pre-startup report for each system.

F. Test Procedures and Test Data Forms:

1. Test procedures shall define the step-by-step procedures to be used to execute tests and test demonstrations.
2. Test procedures shall be specific to the make, model, and application of the equipment and systems being tested.
3. Completed test data forms are the official records of the results of tests.
4. Commissioning Authority will provide to Contractor preliminary test procedures and test data forms for performance tests and commissioning tests after approval of Product Data, Shop Drawings, and preliminary operation and maintenance manual. Test procedures will in general be designed to demonstrate that operating characteristics conform to any or all required and / or approved performance characteristics.
5. Review preliminary test procedures and test data forms and provide comments within 14 days of receipt from Commissioning Authority. Review shall address the following:
  - a. Equipment protection and warranty issues, including, but not limited to, manufacturers' installation and startup recommendations, and operation and maintenance instructions.



- b. Applicability of the procedure to the specific software, equipment, and systems approved for installation.
  6. After Contractor has reviewed and commented on the preliminary test procedures and test data forms, Commissioning Authority will revise and reissue the approved revised test procedures and test data forms marked "Approved for Testing."
  7. Use only approved test procedures and test data forms marked "Approved for Testing" to perform and document tests and test demonstrations.
- G. Performance of Tests:
1. The sampling rate for tests is 100 percent. The sampling rate for test demonstrations is 100 percent unless otherwise indicated.
  2. Perform and complete each step of the approved test procedures in the order listed.
  3. Record data observed during performance of tests on approved data forms at the time of test performance and when the results are observed.
  4. Record test results that are not within the range of acceptable results on commissioning issue report forms in addition to recording the results on approved test procedures and data forms according to the "Commissioning Compliance Issues" Paragraph in this Article.
  5. On completion of a test, sign the completed test procedure and data form. Tests for which test procedures and data forms are incomplete, not signed, or which indicate performance that does not comply with acceptance criteria will be rejected. Tests for which test procedures and data forms are rejected shall be repeated and results resubmitted.
- H. Performance of Test Demonstration:
1. Perform test demonstrations on a sample of tests after test data submittals are approved. The sampling rate for test demonstrations shall be 100 percent of components which are not typical of at least 10, and shall be 25% of components which are typical of at least 10, unless otherwise indicated in the individual test specification.
  2. Notify Owner's witness at least seven days in advance of each test demonstration.
  3. Perform and complete each step of the approved test procedures in the order listed.
  4. Record data observed during performance of test demonstrations on approved data forms at the time of demonstration and when the results are observed.
  5. Provide full access to Owner's witness to directly observe the performance of all aspects of system response during the test demonstration. On completion of a test demonstration, sign the completed data form and obtain signature of Owner's witness at the time of the test to authenticate the reported results.



6. Test demonstration data forms not signed by Contractor and Owner's witness at the time of the completion of the procedure will be rejected. Test demonstrations for which data forms are rejected shall be repeated and results shall be resubmitted.
  - a. Exception for Failure of Owner's Witness to Attend: Failure of Owner's witness to be present for agreed-on schedule of test demonstration shall not delay Contractor. If Owner's witness fails to attend a scheduled test, Contractor shall proceed with the scheduled test. On completion, Contractor shall sign the data form for Contractor and for Owner's witness, and shall note the absence of Owner's witness at the scheduled time and place.
7. False load test requirements are specified in related sections.
  - a. Where false load testing is specified, provide temporary equipment, power, controls, wiring, piping, valves, and other necessary equipment and connections required to apply the specified load to the system. False load system shall be capable of steady-state operation and modulation at the level of load specified. Equipment and systems permanently installed in this work shall not be used to create the false load without Architect's written approval.

I. Deferred Tests:

1. Deferred Tests List: Identify, in the request for Certificate of Construction Phase Commissioning Completion, proposed deferred tests or other tests approved for deferral until specified seasonal or other conditions are available. When approved, deferred tests may be completed after the date of Construction Phase Commissioning Completion. Identify proposed deferred tests in the request for Certificate of Construction Phase Commissioning Completion as follows:
  - a. Identify deferred tests by number and title.
  - b. Provide a target schedule for completion of deferred tests.
2. Schedule and coordinate deferred tests. Schedule deferred tests when specified conditions are available. Notify Architect and Commissioning Authority at least seven calendar days (minimum) in advance of tests.
3. Where deferred tests are specified, coordinate participation of necessary personnel and of Architect, Commissioning Authority, and Owner's witness. Schedule deferred tests to minimize occupant and facility impact. Obtain Architect's approval of the proposed schedule.

J. Delayed Tests:

1. Delayed Tests List: Identify, in the request for Certificate of Construction Phase Commissioning Completion, proposed delayed tests. Obtain Owner approval of proposed delayed tests, including proposed schedule of completion of each delayed test, before submitting request for Certificate of Construction Phase Commissioning Completion. Include the following in the request for Certificate of Construction Phase Commissioning Completion:



- a. Identify delayed tests by test number and title.
  - b. Written approval of proposed delayed tests, including approved schedule of completion of delayed tests.
2. Schedule and coordinate delayed tests. Schedule delayed tests when conditions that caused the delay have been rectified. Notify Architect and Commissioning Authority at least seven calendar days (minimum) in advance of tests.
3. Where delayed tests are approved, coordinate participation of necessary personnel and of Architect, Commissioning Authority, and Owner's witness. Schedule delayed tests to minimize occupant and facility impact. Obtain Architect's approval of the proposed schedule.

K. Commissioning Compliance Issues:

1. Test results that are not within the range of acceptable results are commissioning compliance issues.
2. Track and report commissioning compliance issues until resolution and retesting are successfully completed.
3. If a test demonstration fails, determine the cause of failure. Direct timely resolution of issue and then repeat the demonstration. If a test demonstration must be repeated due to failure caused by Contractor work or materials, reimburse Owner for billed costs for the participation in the repeated demonstration.
4. Test Results: If a test demonstration fails to meet the acceptance criteria, perform the following:
  - a. Complete a commissioning compliance issue report form promptly on discovery of test results that do not comply with acceptance criteria.
  - b. Submit commissioning compliance issue report form within 24 hours of the test.
  - c. Determine the cause of the failure.
  - d. Establish responsibility for corrective action if the failure is due to conditions found to be Contractor's responsibility.
5. Commissioning Compliance Issue Report: Provide a commissioning compliance issue report for each issue. Do not report multiple issues on the same commissioning compliance issue report.
  - a. Exception: If an entire class of devices is determined to exhibit the identical issue, they may be reported on a single commissioning compliance issue report. (For example, if all return-air damper actuators that are specified to fail to the open position are found to fail to the closed position, they may be reported on a single commissioning issue report. If a single commissioning issue report is used for multiple commissioning compliance issues, each device shall be identified in the report, and the total number of devices at issue shall be identified.
  - b. Complete and submit Part 1 of the commissioning compliance issue report immediately when the condition is observed.



- c. Record the commissioning compliance issue report number and describe the deficient condition on the data form.
  - d. Resolve commissioning compliance issues promptly. Complete and submit Part 2 of the commissioning compliance issue report when issues are resolved.
- 6. Diagnose and correct failed test demonstrations as follows:
  - a. Perform diagnostic tests and activities required to determine the fundamental cause of issues observed.
  - b. Record each step of the diagnostic procedure prior to performing the procedure. Update written procedure as changes become necessary.
  - c. Record the results of each step of the diagnostic procedure.
  - d. Record the conclusion of the diagnostic procedure on the fundamental cause of the issue.
  - e. Determine and record corrective measures.
  - f. Include diagnosis of fundamental cause of issues in commissioning compliance issue report.
- 7. Retest:
  - a. Schedule and repeat the complete test procedure for each test demonstration for which acceptable results are not achieved. Obtain signature of Owner's witness on retest data forms. Repeat test demonstration until acceptable results are achieved. Except for issues that are determined to result from design errors or omissions, or other conditions beyond Contractor's responsibility, compensate Owner for direct costs incurred as the result of repeated test demonstrations to achieve acceptable results.
  - b. For each repeated test demonstration, submit a new test data form, marked "Retest."
- 8. Do not correct commissioning compliance issues during test demonstrations.
  - a. Exceptions will be allowed if the cause of the issue is obvious and resolution can be completed in less than five minutes. If corrections are made under this exception, note the deficient conditions on the test data form and issue a commissioning compliance issue report. A new test data form, marked "Retest," shall be initiated after the resolution has been completed.

### 3.6 COMMISSIONING MEETINGS

- A. Commissioning Authority will schedule and conduct commissioning meetings. Comply with requirements in Section 013100 "Project Management and Coordination."



### 3.7 SEQUENCING

- A. Sequencing of Commissioning Verification Activities: For a particular material, item of equipment, assembly, or system, perform the following in the order listed unless otherwise indicated:
  - 1. Construction Checklists:
    - a. Material checks.
    - b. Installation checks.
    - c. Start up, as appropriate. Some startup may depend on component performance. Such startup may follow component performance tests on which the startup depends.
    - d. Performance Tests:
      - 1) Static tests, as appropriate.
      - 2) Component performance tests. Some component performance tests may depend on completion of startup. Such component performance tests may follow startup.
      - 3) Equipment and assembly performance tests.
      - 4) System performance tests.
      - 5) Intersystem performance tests.
  - 2. Commissioning tests.
- B. Before performing commissioning tests, verify that materials, equipment, assemblies, and systems are delivered, installed, started, and adjusted to perform according to construction checklists.
- C. Verify readiness of materials, equipment, assemblies, and systems by performing tests prior to performing test demonstrations. Notify Architect if acceptable results cannot be achieved due to conditions beyond Contractor's control or responsibility.
- D. Commence tests as soon as installation checks for materials, equipment, assemblies, or systems are satisfactorily completed. Tests of a particular system may proceed prior to completion of other systems, provided the incomplete work does not interfere with successful execution of test.

### 3.8 SCHEDULING

- A. Commence commissioning as early in the construction period as possible.
- B. Commissioning Schedule: Integrate commissioning into Contractor's construction schedule. See Section 01 32 00 "Construction Progress Documentation."



1. Include detailed commissioning activities in monthly updated Contractor's construction schedule and short interval schedule submittals.
2. Schedule the start date and duration for the following commissioning activities:
  - a. Submittals.
  - b. Preliminary operation and maintenance manual submittals.
  - c. Installation checks.
  - d. Startup, where required.
  - e. Performance tests.
  - f. Performance test demonstrations.
  - g. Commissioning tests.
  - h. Commissioning test demonstrations.
3. Schedule shall include a line item for each installation check, startup, and test activity specific to the equipment or systems involved.
4. Determine milestones and prerequisites for commissioning. Show commissioning milestones, prerequisites, and dependencies in monthly updated critical-path-method construction schedule and short interval schedule submittals.

C. Two-Week Look-Ahead Commissioning Schedule:

1. Two weeks prior to the beginning of tests, submit a detailed two-week look-ahead schedule. Thereafter, submit updated two-week look-ahead schedules weekly for the duration of commissioning.
2. Two-week look-ahead schedules shall identify the date, time, beginning location, Contractor personnel required, and anticipated duration for each startup or test activity.
3. Use two-week look-ahead schedules to notify and coordinate participation of Owner's witnesses.

D. Owner's Witness Coordination:

1. Coordinate Owner's witness participation via Architect.
2. Notify Architect of commissioning schedule changes at least two work days in advance for activities requiring the participation of Owner's witness.

### 3.9 COMMISSIONING REPORTS

A. Test Reports:

1. Pre-startup reports include observations of the conditions of installation, organized into the following sections:
  - a. Equipment Model Verification: Compare contract requirements, approved submittals, and provided equipment. Note inconsistencies.



- b. Preinstallation Physical Condition Checks: Observe physical condition of equipment prior to installation. Note conditions including, but not limited to, physical damage, corrosion, water damage, or other contamination or dirt.
  - c. Preinstallation Component Verification Checks: Verify components supplied with the equipment, preinstalled or field installed, are correctly installed and functional. Verify external components required for proper operation of equipment correctly installed and functional. Note missing, improperly configured, improperly installed, or nonfunctional components.
  - d. Summary of Installation Compliance Issues and Corrective Actions: Identify installation compliance issues and the corrective actions for each. Verify that issues noted have been corrected.
  - e. Evaluation of System Readiness for Startup: For each item of equipment for each system for which startup is anticipated, document in summary form acceptable to Owner completion of equipment model verification, preinstallation physical condition checks, preinstallation component verification checks, and completion of corrective actions for installation compliance issues.
2. Test data reports include the following:
- a. "As-tested" system configuration. Complete record of conditions under which the test was performed, including, but not limited to, the status of equipment, systems, and assemblies; temporary adjustments and settings; and ambient conditions.
  - b. Data and observations, including, but not limited to, data trend logs, recorded during the tests.
  - c. Signatures of individuals performing and witnessing tests.
  - d. Data trend logs accumulated overnight from the previous day of testing.
3. Commissioning Compliance Issues Reports: Report as commissioning compliance issues results of tests and test demonstrations that do not comply with acceptance criteria. Report only one issue per commissioning compliance issue report. Use sequentially numbered facsimiles of commissioning compliance issue report form included in this Section, or other form approved by Owner. Distribute commissioning compliance issue reports to parties responsible for taking corrective action. Identify the following:
- a. Commissioning compliance issue report number. Assign unique, sequential numbers to individual commissioning compliance issue reports when they are created, to be used for tracking.
  - b. Action distribution list.
  - c. Report date.
  - d. Test number and description.
  - e. Equipment identification and location.



- f. Briefly describe observations about the performance associated with failure to achieve acceptable results. Identify the cause of failure if apparent.
  - g. Diagnostic procedure or plan to determine the cause (include in initial submittal).
  - h. Diagnosis of fundamental cause of issues as specified below (include in resubmittal).
  - i. Fundamental cause of unacceptable performance as determined by diagnostic tests and activities.
  - j. When issues have been resolved, update and resubmit the commissioning issue report forms by completing Part 2. Identify resolution taken and the dates and initials of the persons making the entries.
  - k. Schedule for retesting.
4. Weekly progress reports include information for tests conducted since the preceding report and the following:
    - a. Completed data forms.
    - b. Equipment or system tested, including test number, system or equipment tag number and location, and notation about the apparent acceptability of results.
    - c. Activities scheduled but not conducted per schedule.
    - d. Commissioning compliance issue report log.
    - e. Schedule changes for remaining Commissioning-Process Work, if any.
  5. Data trend logs shall be initiated and running prior to the time scheduled for the test demonstration.
    - a. Trend log data format shall be multiple data series graphs. Where multiple data series are trend logged concurrently, present the data on a common horizontal time axis. Individual data series may be presented on a segmented vertical axis to avoid interference of one data series with another, and to accommodate different axis scale values. Graphs shall be sufficiently clear to interpret data within the accuracy required by the acceptance criteria.
    - b. Attach to the data form printed trend log data collected during the test or test demonstration.
    - c. Record, print out, and attach to the data form operator activity during the time the trend log is running. During the time the trend log is running, operator intervention not directed by the test procedure invalidates the test results.
  6. System Alarm Logs: Record and print out a log of alarms that occurred since the last log was printed. Evaluate alarms to determine if the previous day's work resulted in any conditions that are not considered "normal operation."



- a. Conditions that are not considered "normal operation" shall be reported on a commissioning issue report attached to the alarm log. Resolve as necessary. The intent of this requirement is to discover control system points or sequences left in manual or disabled conditions, equipment left disconnected, set points left with abnormal values, or similar conditions that may have resulted from failure to fully restore systems to normal, automatic control after test completion.

### 3.10 CERTIFICATE OF CONSTRUCTION PHASE COMMISSIONING COMPLETION

- A. When Contractor considers that construction phase commissioning, or a portion thereof which Owner agrees to accept separately, is complete, Contractor shall prepare and submit to Owner and Commissioning Authority through Architect a comprehensive list of items to be completed or corrected. Failure to include an item on such list does not alter Contractor's responsibility to compete commissioning.
- B. On receipt of Contractor's list, Commissioning Authority will make an inspection to determine whether the construction phase commissioning or designated portion thereof is complete. If Commissioning Authority's inspection discloses items, whether or not included on Contractor's list, which are not sufficiently complete as defined in "Construction Phase Commissioning Completion" Paragraph in the "Definitions" Article, Contractor shall, before issuance of the Certificate of Construction Phase Completion, complete or correct such items on notification by Commissioning Authority. In such case, Contractor shall then submit a request for another inspection by Commissioning Authority to determine construction phase commissioning completion.
- C. Contractor shall promptly correct deficient conditions and issues discovered during commissioning. Costs of correcting such deficient conditions and issues, including additional testing and inspections, the cost of uncovering and replacement, and compensation for Architect's and Commissioning Authority's services and expenses made necessary thereby, shall be at Contractor's expense.
- D. When construction phase commissioning or designated portion is complete, Commissioning Authority will prepare a Certificate of Construction Phase Commissioning that shall establish the date of completion of construction phase commissioning. Certificate of Construction Phase Commissioning Completion shall be submitted prior to requesting inspection for determining date of Substantial Completion.

END OF SECTION 01 08 00



## **SECTION 01 10 00 - SUMMARY OF WORK**

### **A. GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including the General and Supplemental Conditions and Division 1 Specification Section, apply to this Section.

#### **1.2 SUMMARY**

- A. Project Identification: Project consists of renovations to the Wallkill Senior High School, John G. Borden Middle School, Ostrander Elementary School, Plattekill Elementary Schools, and Leptondale Elementary School as shown on the contract drawings and described in the project manual.

### **B.**

#### **1. Project Locations:**

- a. Project sites located at various locations at the Wallkill Central School District

- 1) Wallkill High School  
90 Robinson Drive  
Wallkill, NY 12589
- 2) John G. Borden Middle School  
109 Bona Ventura Avenue  
Wallkill, NY 12589
- 3) Ostrander Elementary School  
137 Viola Street  
Wallkill, NY 12589
- 4) Plattekill Elementary School  
1270 Rt. 32  
Plattekill, NY 12568
- 5) Leptondale Elementary School  
48 Mill Street  
Wallkill, NY 12589

#### **2. Owner:**

Wallkill Central School District  
1500 Rt 208  
PO Box 310  
Wallkill, NY 12589

#### **3. Architect:**

Tetra Tech Architects & Engineers  
Cornell Business and Technology Park  
10 Brown Rd.  
Ithaca, NY 14850

#### **4. CM: Barone Construction Group, Inc.**

23 New Paltz Rd.  
Highland, NY 12528

- C. The work includes alterations for various locations at the Wallkill Central School District.

1. All materials, equipment and methods of construction shall comply with all the requirements of the latest edition of The New York State Building Code, and the regulations of NY State Education Department.
2. The Specific work scheduled to be performed must be completed such that it will not impact/impede school egress when school is in session.



### 1.3 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and Division 0 & 1 Specification Sections, apply to this Section.

### 1.4 THE CONTRACT

- A. The Project will be constructed under a multiple prime contracting arrangement with the Owner awarding and holding the separate Contracts. Each contractor shall furnish all labor, material, tools, equipment, supervision, layout, delivery, trucking, shop drawings, submittals, storage etc. necessary to complete the work described in the Division of Work of their respective Contracts and based upon a complete set of Contract Documents.
- B. Each Contractor has been given the opportunity prior to bid to inspect the entire Project sites for interferences to their Contract work and agrees to accept the sites as they exist on the date of the bid opening.
- C.
  - 1. It is the Owner's intention to continue to occupy the existing buildings and sites for normal School operations during the Construction process. The Contractors all agree to:
    - a. Cooperate with the Owner's personnel in maintaining and facilitating access to the school buildings and its facilities by the school staff, Students, Owner's agents, service consultants and the public, throughout the construction process.
    - b. Keep driveways and entrances serving the occupied School buildings clear and available to the Owner, the Owner's employees, the public and to emergency vehicles at all times. Do not obstruct access to or use these areas for parking or staging of equipment or materials. All access through these existing areas must be coordinated in advance and in accordance with the Owner's usage and occupancy schedule.
    - c. Schedule construction operations to minimize any conflicts or interruptions to the daily school functions. Coordinate any necessary interruptions with the designated project representative.
    - d. All existing Owner-occupied buildings (not turned over to the Project Contractors) need to remain operational at all times. The contractors are responsible to maintain all systems, such as but not limited to fire alarm, clocks, electric, public address system, gas service, heat, plumbing etc.
- D. Each Prime Contractor shall:
  - 1. Prohibit tobacco, alcohol, illegal drug and firearm possession and use by their employees while on site.
  - 2. Prohibit conduct which materially and substantially interferes with the educational process, including the use of obscene and profane language and gestures.
  - 3. Coordinate construction schedule information to formulate one master schedule for the entire Project.
  - 4. Provide adequate temporary restroom facilities for its own employees.
  - 5. Provide potable drinking water for its own employees.
  - 6. Provide access to all concealed systems as required for system maintenance and repair for items installed in their Prime Contract.
  - 7. Provide and maintain material lifting equipment required for the completion of their Contract requirements, and complying with NYS Labor Laws, OSHA Regulations, and other Federal, State, and local laws.
  - 8. Provide and maintain additional temporary stairs, ladders, ramps, scaffolding, and platforms required specifically for completion of work of their own Contract, and as further detailed in this section. All work needs to comply with the NYS Labor Laws, OSHA regulation, and other Federal, State, and local laws.



9. Provide Fire Prevention materials and equipment for fire protection related to the work of their own Prime Contract. Provide fire extinguishers, fire blankets, and fire watch during all cutting and welding operations.
10. Provide any supplemental lighting required to install the work of its own Contract, beyond the minimum OSHA levels provided under the Electrical Work Prime Contract.
11. Provide traffic control for deliveries, and equipment needed to perform the work of their own Prime Contract.
12. Provide protection of its own finished Work, after installation, until accepted by the Owner.
13. Provide fire caulking for any penetration related to the work for its own Prime Contract.
14. Provide final cleaning per Spec Section 01 77 00.
15. Provide any office and storage trailers required to complete the work of their own Prime Contract. The location of the office and storage trailers will be determined by the Owner and the Construction Manager.
16. Provide for a thorough final cleaning of the site, building, and equipment provided under their Prime Contract immediately before the final inspection. Each Prime Contractor is responsible for cleaning and dust and debris generated from the work of their own Contract.
  - a. Maintain areas in a cleaned condition until the Owner occupies the space.
  - b. Personnel: Experienced workmen or professional cleaners.
17. All personnel shall have company issued ID badges (with picture and name) visible while working on site.
18. Provide OSHA 10 cards to Construction Manager for each employee working on site prior to starting work.
19. All personnel working on site shall be provided and wear correctly fitted, proper PPE (personal protective equipment) suitable for their tasks as necessary and per OSHA requirements.
20. All personnel working on site shall wear proper working attire.
21. Failure to provide requirements listed above could lead to personnel being removed from site.

## 1.5 SUMMARY OF WORK

- A. The work will be constructed under multiple prime contracts. One set of contract documents is issued covering the multiple contracts. Each Prime Contract is defined as:
  1. CONTRACT GC-1 General Works Contractor – All schools
  2. CONTRACT HVAC-1 Mechanical Work Contractor – All 3 elementary schools
  3. CONTRACT SC-1 Site Work Contractor - High School (Areas A and B)
  4. CONTRACT SC-2 Site Work Contractor – New Parking Lot at High School (Area C and E)
  5. CONTRACT SC-3 Site Work Contractor – Ostrander Elementary School and Don Andrews Field at High School (High School Area D)
  6. CONTRACT EC-1 Electrical Work Contractor – All schools
  7. CONTRACT PC-1 Plumbing Work Contractor- Plattekill Elementary School
- B. The owner will construct other projects generally concurrent with these contracts as follows. Cooperate fully with the separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this contract or other contracts. Coordinate the work of this contract with the work performed under the separate contracts.
- C. The following are furnished and installed contracts:
  1. Secure Vestibules and associated work- All schools
  2. Auditorium Seating- John G. Borden Middle School
  3. Playground Equipment- Ostrander Elementary School
  4. Roofing Contractor 1- RC-1 Ostrander Elementary School
  5. Roofing Contractor 2- RC-2 Plattekill Elementary School
  6. Roofing Contractor 3- RC-3 Leptondale Elementary School
  7. Security Contractor- All Schools



- D. The following are furnish only contracts (installation is by the specific primes called for in the contract documents)
  - 1. Interior Security Door Hardware - Installed by the General Works Contractor GC-1
  - 2. HVAC Equipment - installed by the Mechanical Work Contractor HVAC-1

## 1.6 WORK UNDER SEPARATE CONTRACTS

- A. The project will be constructed under a multiple-prime contracting arrangement.
- B. One set of documents is issued covering all multiple prime contracts. Each prime contractor is to review ALL drawings and specifications for complete understanding and knowledge of the work.
- C. The following Contract Documents are specifically included and defined as integral to each Prime Contract.
  - 1. Bidding Requirements
  - 2. Performance and Payment Bonds
  - 3. Conditions of the Contract, including
    - a. General Conditions & Supplementary Conditions
    - b. Insurance Requirements
    - c. NYS Prevailing Wage Rates.
- D. Extent of Contract: Unless the Contract Documents contain a more specific description of the Work, names and terminology on Drawings and in Specification Sections determine which contract includes a specific element of Project.
  - 1. Unless otherwise indicated, the Work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
  - 2. Concrete for the Work of each contract shall be provided by each contract for its own Work, unless specifically assigned to another Contract.
  - 3. Provide all cutting & patching associated with the Work of its Prime Contract. All patching is to be performed by mechanics qualified and experienced with the materials and finishes being patched and hired by the responsible Prime Contractor.
  - 4. Firestopping for the Work of each contract shall be provided by each contract for its own Work. Firestopping shall comply with Division 7 Section "Penetration Firestopping"
  - 5. Access doors not shown on Architectural drawings and required for access to junction boxes, valves and similar equipment for the Work of each contract shall be furnished and installed by each contract for its own Work. All access doors shall comply with Division 8 Section "Access Doors and Frames."
  - 6. Lead Based Paint precautions for the Work of each contract shall be provided by each contract for its own Work. Each Prime Contractor shall provide procedures for OSHA Lead precautions.
  - 7. Each Prime Contractor shall designate a full-time superintendent to supervise the work of the Prime Contractor, who shall always be present on the job site when work is being performed; this person shall be familiar with the Project and authorized to conclude matters relating to progress. This person shall also represent their company at weekly contractor meetings. The Owner, Construction Manager and Architect should be informed of the contractor's designated personnel and approve of the person.
  - 8. Termination and removal of its temporary facilities shall be provided by each contract for its own Work.
- E. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Division 1 Section 01 50 00 "Temporary Facilities and Controls," each Contract is responsible for the following:
  - 1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, and costs and use charges associated with each facility



2. Generators, plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Temporary heat for construction at isolated work areas.
4. Temporary enclosures for its own construction activities.
5. Hoisting requirements for its own construction activities.
6. Each Prime Contractor is to stockpile their debris on a daily basis and place it in their dumpster. Dumpsters will be provided by each Prime Contractor at each site as necessary. All Prime Contractors are responsible to remove their waste offsite. Waste disposal of asbestos containing materials will be by the General Work Contractor.
7. Secure lockup of its own tools, materials, and equipment.
8. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
9. Safety procedures as dictated by the district, OSHA, and the NYS Department of Labor.
10. Safety and wayfinding signage.
11. Labor for daily clean-up.

#### 1.7 GENERAL WORK CONTRACT - GC-1

- A. The Work of the General Work Construction Contract includes but is not limited to, the following descriptions:

1. Structural steel reinforcement for roofing and HVAC work, acoustical ceilings, drywall soffits, casework, storefronts, all work associated with secure vestibules and security offices, hardware installation and associated demolition work.
  - a. Drawings
    - 1) General
    - 2) Code Compliance
    - 3) Architectural
    - 4) Structural
    - 5) Hazardous Materials
2. Coordination:
  - a. Coordination with the work of all the other contractors.
    - 1) Drawings
      - a) All
3. NOT in Scope but coordination by this contract
  - a. Roofing and roof penetration
  - b. Secure Vestibule and surrounding work
  - c. Interior Door Locket Material
  - d. Auditorium Seating
4. Demolition:
  - a. Asbestos containing material removal as shown in the contract documents and disposal per Code Rule 56. Follow all spec section as listed.
  - b. Construction of hard barriers separating abatement areas from all other areas.
  - c. Properly dispose of Hazardous & Special Waste as per spec section 020080 Asbestos Abatement Procedures
  - d. Minor Demolition including but not limited to interior doors/frames/hardware, ceilings, interior walls and interior finishes.
  - e. Removal and disposal of miscellaneous equipment including all existing wall mounted specialty items and/or equipment not shown if impacting work to be demolished.
  - f. All cutting and patching necessary for work of this contract, including layout, sleeves, coring, debris removal, saw cuts, providing lintels, drywall work, grouting, painting, ceiling removal and replacement, etc.
  - g. Prep opening to receive new work as described in the contract documents.
  - h. Hard barrier as required by SED to separate workspaces from occupied space.



5. Temporary Facilities
    - a. Provide and maintain dust protection.
    - b. Provide and maintain continuous exits.
    - c. Provide and maintain temporary heat and ventilation.
    - d. Provide and maintain building safety and wayfinding signage.
    - e. Provide and maintain Construction Manager's field office.
    - f. Provide and maintain enclosures and partitions.
    - g. Provide and maintain secure building entrances during replacement of exterior doors and frames.
    - h. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls"
  6. New Construction:
    - a. Install Interior lockset hardware provided by others. Coordination, delivery and confirmation of all hardware is by this contractor and shall be scheduled before any work commences.
    - b. Provide labor, material, and equipment to install cold formed metal framing
    - c. Provide labor, material and equipment to install structural steel. Any removal of existing structural steel to perform work shall be removed in a safe manner and re-installed after completion of work. Coordination of work shall be performed with HVAC and Electrical Contractors.
    - d. Provide labor, material and equipment to install new ceilings.
    - e. Provide rough and finish carpentry.
    - f. Provide thermal and moisture protection, other than roofing.
    - g. Provide all finishes including: resilient vinyl tile, carpet, painting, suspended acoustical ceilings, LVT and ceramic tile.
    - h. Contractor shall include painting for full wall of disturbed areas.
    - i. Any areas disturbed during demo shall be repaired to like new.
    - j. Provide all labor, material and equipment for casework and millwork and its installation.
  7. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.
  8. Provide multiple shift work as needed to complete work as shown on milestone schedule. Work during the month of July and August can be performed during first shift and if required to complete work during second shift. All work outside of that shall be performed during second shift. It is the contractor's responsibility to include such shift work in their contract. The Owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detail schedule which will be approved by the Construction Manager for all shift work required prior to work commencing.
  9. Provide for a thorough cleaning of the site and building (interior and exterior) immediately before final inspection.
    - a. Maintain areas in a cleaned condition until the Owner occupies the space.
    - b. Personnel: Experienced workman or professional cleaners.
- B. The Work of the General Construction Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:
1. Division 1 –General Requirements, all Sections, including Temporary Facilities indicated.
  2. Division 2 – Existing Conditions all Sections
  3. Division 4- Masonry all sections
  4. Division 5 – Metals, all Sections
  5. Division 6 – Woods and Plastics, all Sections.
  6. Division 7 –Thermal and Moisture Protection, other than roofing and roof specialties
  7. Division 8 – Openings, all sections
  8. Division 9 – Finishes, all Sections
  9. Division 10- Specialties, all sections except 10 14 53 Traffic Signage



## 1.8 MECHANICAL WORK CONTRACTS - HVAC-1

### A. Work of this Contract includes, but is not limited to, the following descriptions:

1. Includes HVAC Equipment, Piping, ductwork, control systems, plus other construction operations traditionally recognized as heating, ventilating and cooling work. This includes, but is not limited to, all work shown on the drawings, unless noted otherwise. It also includes Administrative and coordination responsibilities.
  - a. Drawings
    - 1) Mechanical
2. Coordination:
  - a. Coordination with the work of all the other contractors.
    - 1) Drawings
      - a) All
3. Demolition
  - a. Provide demolition of all HVAC equipment, controls, and piping as shown and as required per the Contract Documents.
  - b. Removals and storage in a manner to re-install after work by others has been performed as per the Contract Documents.
  - c. Provide Coordination with other trades. Specific coordination with the General Work Contractor, Roofing Contractor & Electrical Contractor.
  - d. Removals shall be performed per the Milestone schedule
  - e. Provide layout for Roofing Contractor and General Work Contractor to perform required removals.
  - f. Roof penetrations. HVAC Contractor to locate all locations and sizes of equipment curbs. Provide mechanical equipment curbs to the Roofing Contractor. Roofing Contractor to provide all necessary penetrations, flashing and roofing.
4. Temporary Facilities
  - a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls"
5. Construction:
  - a. Note that HVAC equipment will be provided under a separate contract as noted on the drawings. Delivery, storage, and Installation is by this contractor. Scheduling of delivery will be the responsibility of this contract and coordinated with the Construction Manager and the Commissioning company.
  - b. Provide all work indicated on the contract drawings
  - c. Provide and install all new hot water supply and return piping.
  - d. Provide and install ductwork and associated components per the drawings and specs
  - e. Install Air Handling Unit and Roof top units with heat recovery, unless otherwise noted.
  - f. Provide and install all refrigerant piping and hydronic piping to all units
  - g. Install unit heaters.
  - h. Install remote condensing units.
  - i. Where called on drawings provide re-installation of unit ventilators and finned tube. Any damage during removals will be the responsibility of this contractor to repair/replace at their own cost.
  - j. Provide and install all insulation, painting and labeling of new and modified piping, ductwork and equipment.
  - k. Provide all controls and energy management systems. Coordinate with owners to provided required system.
  - l. Provide proper roofing supports and accessories for equipment on roof.



- m. Provide all testing, adjusting and balancing of all new and existing modified HVAC systems.
  - n. All fees required for inspections and permits.
  - o. Provide support framing for HVAC equipment, e.g., mechanical equipment curbs.
  - p. Furnish access doors for HVAC access as indicated above (to be installed by GC)
  - q. Provide firestopping and sealing all HVAC penetrations
  - r. Furnish motor controllers/disconnects to Electrical Contractor for installation and wiring.
  - s. Provide owner training / commissioning of equipment and controls
  - t. All HVAC removals as shown and required for completion of the work.
- 6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.
  - 7. Provide multiple shift work as needed to complete work as shown on milestone schedule. All work will be phased per the milestone schedule. MC to provide a more detailed schedule. It is the contractor's responsibility to include such shift work in their contract. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing. Shift work will not be required during summer break unless necessary to maintain the project schedule.
- B. The Work of the Mechanical Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all plan drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:
- 1. Division 1 –General Requirements all Sections, including Temporary Facilities indicated
  - 2. Section 07 84 13, Penetration Firestopping, as required for the Work of this Contract
  - 3. Section 07 92 00, Joint Sealants, as required for the Work of this Contract
  - 4. Division 23 – Mechanical, all Sections

#### 1.9 SITE WORK CONTRACT - SC-1 (High School Areas A and B)

- A. The Work of the Sitework Contract includes but is not limited to, the following descriptions:
- 1. Includes removals, grading, sub-base, paving, curbing and sidewalks, fencing, stormwater and buried utilities plus other construction operations traditionally recognized as sitework. This includes, but is not limited to, all work shown on the drawings, and unless noted otherwise. It also includes Administrative and coordination responsibilities.
    - a. Drawings
      - 1) Survey/Mapping- Wallkill Senior High School
      - 2) Civil- Wallkill Senior High School
      - 3) Structural- Wallkill Senior High School
      - 4) Plumbing
  - 2. Coordination:
    - a. Coordination with the work of all the other contractors.
      - 1) Drawings
        - a) All
  - 3. Demolition:
    - a. Removal of items as shown and/or required. Coordinate utility shutdowns with Owner, Construction Manager and municipality.



- b. Removal of concrete curbing, sidewalks, asphalt parking lots and roadways, sub-base materials, signage, concrete structures, piping, fencing and gates, baseball field (including demolition of dugouts) and any appurtenances associated with the sitework as called for in the contract documents. Coordinate with the General Contractor, Electrical Contractor and Construction Manager.
- c. Removal of items as shown and/or required. Coordinate utility shutdowns with Owner, Construction Manager and municipality.
- d. Removal of concrete curbing, sidewalks, asphalt parking lots and roadways, sub-base materials, signage, concrete structures, piping, fencing and gates, baseball field including dugouts and any appurtenances associated with the sitework as called for in the Contract Documents. Coordinate with the General Contractor, Electrical Contractor and Construction Manager.

#### 4. Temporary Facilities

- a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls", including but not limited to:
  - 1. Temporary site fencing and gates
  - 2. Safety and wayfinding signage
  - 3. Temporary roads and paving
  - 4. Dewatering and site drainage
  - 5. Tree and plant protection
  - 6. Erosion, sedimentation and dust control

#### 5. New Construction:

- a. All fees required for inspections and permits.
- b. Provide all asphalt paving and sub-base, concrete and granite curbing, sidewalks, buried utilities including water mains, storm water systems, site signage, fencing and gates and any appurtenances associated with sitework as called for in the Contract Documents. Provide excavation and backfill for all exterior buried electrical conduit. Install precast light pole bases provided by Electrical Contractor.
- 6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.
- 7. Provide multiple shift work and Saturday work as needed to complete work as shown on milestone schedule. It is the contractor's responsibility to include such shift work in their contract if necessary to complete the work on schedule. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing.

#### B. The Work of the Sitework Contract includes, but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 1. Division 1 –General Requirements all Sections, including Temporary Facilities indicated
- 2. Division 2 – 02 41 19 Selective Removal
- 3. Division 02 - 02 65 00, Storage Tank Permanent Closure
- 4. Division 3 – 03 30 53 Miscellaneous Cast In Place Concrete
- 5. Division 10 – 10 14 53 Traffic Signage
- 6. Division 11 – 11 68 33.33 Baseball Athletic Field Equipment
- 7. Division 21 - 21 24 00, Dry Chemical Fire Extinguishing System.
- 8. Division 26 – Baseball – Softball Scoreboard
- 9. Division 31 – all sections
- 10. Division 32 – all sections
- 11. Division 33 - all sections



- A. The Work of this Site Work Contract includes but is not limited to, the following descriptions:
1. Includes removals, grading, sub-base, paving, curbing and sidewalks, fencing, stormwater and buried utilities plus other construction operations traditionally recognized as sitework. This includes, but is not limited to, all work shown on the drawings unless noted otherwise. It also includes Administrative and coordination responsibilities.
    - a. Drawings
      - 1.) Survey / Mapping - Wallkill Senior High School
      - 2.) Civil - Wallkill Senior High School
  2. Coordination:
    - a. Coordination with the work of all other contractors
      - 1) Drawings
        - a. All
  3. Demolition:
    - a. Removal of items as shown and/or required. Coordinate utility shutdowns with Owner, Construction Manager and municipality.
    - b. Removal of concrete curbing, sidewalks, asphalt pathways and roadways, sub-base materials, signage, concrete structures, piping, fencing and gates and any appurtenances associated with the sitework as called for in the Contract Documents. Coordinate with the General Contractor, Electrical Contractor and Construction Manager.
  4. Temporary Facilities
    - a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls", including but not limited to:
      1. Temporary site fencing and gates
      2. Safety and wayfinding signage
      3. Temporary roads and paving
      4. Dewatering and site drainage
      5. Tree and plant protection
      6. Erosion, sedimentation and dust control
  5. New Construction:
    - a. All fees required for inspections and permits.
    - b. Provide all asphalt paving and sub-base, concrete curbing, sidewalks, buried utilities including storm water systems, site signage, fencing and gates. Provide excavation and backfill for all exterior buried electrical conduit. Install precast light pole bases provided by Electrical Contractor.
  6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.
  7. Provide multiple shift work as needed to complete work as shown on milestone schedule. It is the contractor's responsibility to include such shift work in their contract if necessary to complete the work on schedule. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing.
- C. The Work of the Sitework Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:



1. Division 1 –General Requirements all Sections, including Temporary Facilities indicated
2. Division 2 – 02 41 19 Selective Removal
3. Division 3 – 03 30 53 Miscellaneous Cast In Place Concrete
4. Division 10 – 10 14 53 Traffic Signage
5. Division 31 – all sections
6. Division 32 – all sections
7. Division 33 - all sections

1.11 SITE WORK CONTRACT - SC-3 (High School Area D and Ostrander Elementary School)

A. The Work of this Sitework Contract includes but is not limited to, the following descriptions:

1. Includes removals, grading, sub-base, paving, curbing and sidewalks, fencing, stormwater and buried utilities plus other construction operations traditionally recognized as sitework. This includes, but is not limited to, all work shown on the drawings unless noted otherwise. It also includes Administrative and coordination responsibilities.
    - a. Drawings
      - 1) Survey/Mapping- Walkkill Senior High School & Ostrander Elementary School
      - 2) Civil- Walkkill Senior High School & Ostrander Elementary School
  2. Coordination:
    - a. Coordination with the work of all other contractors
      - 1) Drawings
        - a. All
  3. Demolition:
    - a. Removal of items as shown and/or required. Coordinate utility shutdowns with Owner, Construction Manager and municipality.
    - b. Removal of concrete curbing, sidewalks, asphalt pathways and roadways, sub-base materials, signage, concrete structures, piping, fencing and gates and any appurtenances associated with the sitework as called for in the Contract Documents. Coordinate with the General Contractor, Electrical Contractor and Construction Manager.
1. Temporary Facilities
    - a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls", including but not limited to:
      - 1 Temporary site fencing and gates
      - 2 Safety and wayfinding signage
      - 3 Temporary roads and paving
      - 4 Dewatering and site drainage
      - 5 Tree and plant protection
      - 6 Erosion, sedimentation and dust control
  2. New Construction:
    - a. All fees required for inspections and permits.
    - b. Provide all asphalt paving and sub-base, concrete curbing, sidewalks, buried utilities including storm water systems, site signage, fencing and gates. Provide excavation and backfill for all exterior buried electrical conduit.
  3. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.



4. Provide multiple shift work as needed to complete work as shown on milestone schedule. It is the contractor's responsibility to include such shift work in their contract if necessary to complete the work on schedule. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing.
- B. The Work of the Sitework Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:
1. Division 1 –General Requirements all Sections, including Temporary Facilities indicated
  2. Division 2 – 02 41 19 Selective Removal
  3. Division 3 – 03 30 53 Miscellaneous Cast In Place Concrete
  4. Division 10 – 10 14 53 Traffic Signage
  5. Division 31 – all sections
  6. Division 32 – all sections
  7. Division 33 - all sections

#### 1.12 ELECTRICAL WORK CONTRACT - EC-1

- A. Work of this Contract includes, but is not limited to, the following descriptions:
1. Includes interior and exterior Electrical Lighting, Electrical Panel and Equipment connections and other systems traditionally recognized as Electrical work. This includes but is not limited to, all work shown on the Drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
    - a. Drawings
      - 1) Electrical
  2. Coordination:
    - a. Coordination with the work of all of the prime contractors.
      - 1) Drawings
        - a) All
  3. Demolition:
    - a. Removal of items as shown and/or required.
    - b. Removal and disconnections of electrical devices in walls, ceilings, floors and site scheduled to be removed in portion of building and site where other work is being performed.
    - c. Removal of lighting fixtures & other electrical devices scheduled to be removed. Coordinate with GC and SC's for related work. Temporary lighting will be required for areas that ceilings are removed. Areas that are called to be removed and re-installed shall be the responsibility of the contractor to remove in a manner as to not damage material and to be stored in a safe place until time to re-install. The owner will not provide a place to store material.
    - d. Coordinate with the Construction Manager for necessary shutdowns and removals. Minimum of 48-hour notice will be required for any shutdown so that it doesn't affect other trades or the school district's operations. Shutdown may be required to be performed during second shift or weekend.
    - e. Disconnect power to mechanical and plumbing equipment as required per the contract documents. Coordinate all work with HVAC and SC-1 Contractors.
    - f. All cutting and patching necessary for work of this contract, including layout, sleeves, coring, debris removal, saw cuts, lintels (furnish and install), drywall work, plaster work, grouting, painting, ceiling removal and replacement, etc.
  4. Temporary Facilities
    - a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls"



- b. Provide and maintain temporary electric power and lighting.
- c. Provide and maintain electric and internet service to Construction Manager's field office.
- d. Provide and maintain fire alarm and security system during replacement of the entrance doors and frames.

5. New Construction:

- a. Provide ALL wiring to ALL HVAC equipment as indicated on the drawings
- b. Provide ALL wiring to ALL security and communications devices. Security and communications devices will be provided by and connected by others.
- c. Provide new lighting fixtures indicated on the contract documents.
- d. All existing and new wire shall be properly supported above the ceiling per the contract documents. This includes all wire that is currently sitting on the ceiling tile and grid in areas where ceilings are to be removed.
- e. Reinstall items that were removed and relocated as per the contract documents.
- f. Provide all cutting and patching required for installing all electrical fixtures, devices, wire and conduit.
- g. Provide all fees required for inspections and permits.
- h. Provide and install all interior lighting and exterior lighting. All cutting and patching for lighting will be by this contractor.
- i. Provide and install all exterior light poles, fixtures, conduit and wiring. Provide precast light pole bases for installation by SC-1 and SC-2.
- j. Provide support framing for Electrical equipment and conduits.
- k. Provide firestopping and sealing all electrical penetrations
- l. Provide owner training

6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.

7. Provide multiple shift work as needed to complete work as shown on milestone schedule. It is the contractor's responsibility to include such shift work in their contract. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing.

B. The Work of the Electrical Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all plan drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 1.
- 2. Division 1 –General Requirements all Sections, including Temporary Facilities indicated
- 3. Section 07 84 13, Penetration Firestopping, as required for the Work of this Contract
- 4. Section 07 92 00, Joint Sealers, as required for the Work of this Contract
- 5. Division 23 – Mechanical as applicable for Equipment Connections
- 6. Division 26 - Electrical - All Sections
- 7. Division 27- Communications- All Sections
- 8. Division 28 – Electronic Safety and Security- All Sections

1.13 CONTRACT PC-1 – PLUMBING WORK CONTRACTOR

A. Work of this Contract includes, but is not limited to, the following descriptions:

- 1. Includes All work traditionally recognized as Plumbing work. This includes but is not limited to, all work shown on the Drawings, unless noted otherwise. It also includes administrative and coordination responsibilities.
  - a. Drawings
    - 1) Plumbing- Plattekill Elementary School



2. Coordination:

- a. Coordination with the work of all of the prime contractors.
  - 1) Drawings
    - a) All

3. Demolition:

- a. Removal of items as shown and/or required.
- b. Removal and disconnections of existing booster pumps, control panel and concrete housing keeping pad
- c. Coordinate with the Construction Manager for necessary shutdowns and removals. Minimum of 48-hour notice will be required for any shutdown so that it doesn't affect other trades or the school district's operations. Shutdown may be required to be performed during second shift or weekend.
- d. All cutting and patching necessary for work of this contract, including layout, sleeves, coring, debris removal, saw cuts, lintels (furnish and install), drywall work, plaster work, grouting, painting, ceiling removal and replacement, etc.

4. Temporary Facilities

- a. Provide Temporary Facilities indicated as Work of this Contract in Division 1 Section 01 50 00, "Temporary Facilities and Controls"
- b. Provide and maintain temporary electric power and lighting.
- c. Provide and maintain electric and internet service to Construction Manager's field office.
- d. Provide and maintain fire alarm and security system during replacement of the entrance doors and frames.

5. New Construction:

- a. Provide new booster pumps, control panel and piping
- b. Provide concrete housekeeping pad
- c. Provide owner training

6. General Requirements, including but not limited to, additional items specifically indicated as the Work of this Contract.

7. Provide multiple shift work as needed to complete work as shown on milestone schedule. It is the contractor's responsibility to include such shift work in their contract. The owner will not be responsible for paying any cost associated with shift work. Contractors will be required to provide a detailed schedule which will be approved by the CM for all shift work required prior to work commencing.

- B. The Work of the Electrical Work Contract includes but is not limited to the Work that is specified in the Project Manual(s) and as shown on the drawings that form the contract plans. The Contractor is directed to examine all plan drawings since certain details and/or notes may appear anywhere therein that apply to his/her particular work. This prime contract is defined as, and includes, all Sections in the Divisions indicated by reference, and specific Sections noted:

- 1. Division 01 –General Requirements all Sections, including Temporary Facilities indicated
- 2. Division 03 - 03 30 53- Miscellaneous Cast-in-Place concrete as it relates to the housekeeping pad
- 3. Division 07 - 07 84 13, Penetration Firestopping, as required for the Work of this Contract
- 4. Division 07 - 07 92 00, Joint Sealers, as required for the Work of this Contract
- 5. Division 22- Plumbing as it relates to the work at Plattekill Elementary School

1.14 DEFINITION OF EXTENT OF PRIME CONTRACT WORK; ADDITIONAL PRIME CONTRACT WORK NOT PREVIOUSLY DESCRIBED

- 1. All Prime Contractors are responsible for reviewing plans and specs as it pertains to their scope of work mentioned in the contract documents. Scopes of work referenced may be found in multiple locations throughout the plans and specifications.



2. Local custom and trade union jurisdictional settlements do not control the scope of work included in each prime contract. When a potential jurisdictional dispute or similar interruption of work is first identified or threatened, the affected prime contracts shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and delays.
3. All OSHA safety and hazardous materials regulations will be enforced on this project. All Contractors must submit a safety program, a hazardous materials program, (all required data must be maintained at the job site) and attend safety meetings. Toolbox talks will be required from each prime contractor.
4. All Contractors are responsible for any debris caused by their work. Daily clean-up and disposal are required by each Contractor for the periods which that Contractor is performing work on site. Each trade will assign at least one person to the weekly clean-up; the name of this person is to be submitted to the Construction Manager.
5. All Contractors are responsible for cutting/patching required to complete their work. All exposed finishes must be ready to receive paint, etc.; all concealed openings (piping, ductwork, conduit, etc.) must be repaired to comply with specified wall or deck conditions.
6. Multiple Crews: To maintain the project schedule, each Prime Contractor may be required to provide multiple crews. Each crew is to be furnished with its own supervision, cranes, scaffold and other means necessary to maintain the Project Schedule.
7. Supervision: The proposed project manager and field superintendent for the project is to have at least five years experience in the proposed position. Each successful bidder shall submit resumes to the Construction Manager for the proposed project manager and field superintendent for the project. This information will be reviewed with the Owner, Architect and Construction Manager for approval. Should the Project Managers and/or Superintendent prove unqualified for the position at any point in the project, the Construction Manager shall issue a letter stating that the person is to be removed from involvement in the project. Action by the contractor must be made within seven working days of receipt of such letter.
8. When selective demolition or cutting and patching (all demolition necessary for work of their contract, including layout, sleeves, coring, debris removal, saw cuts, drywall work, plaster work, grouting, painting, ceiling removal, etc) is required solely by another prime contract to perform their work it shall be by the Prime Contractor requiring the work to achieve the result indicated. Under this condition, the prime contractor needing the demolition to perform the work will accomplish the demolition and the cutting and patching as indicated in Subparagraph 5 above.
9. Each prime contractor shall return areas disturbed by their work activities to condition prior to start of work.
10. Each prime contractor shall maintain a current set of Contract Documents (including any Addenda, Change Orders, and Modifications thereto), approved shop drawings, samples, color schedules and other data pertinent to the Project.
11. Each prime contractor is to survey existing work and submit to the Construction Manager a list of damaged areas (e.g., plaster walls, woodwork) prior to commencing work. Any damaged areas not identified prior to the work shall be the responsibility of the contractor/ Contractors working in that area. Construction Manager will have photos of existing conditions on file for reference.
12. Clean up: Each Prime Contractor is to stockpile their debris on a daily basis and place it in the dumpster. Dumpsters for non-asbestos containing materials shall be provided by each Prime Contractor for their own work.
13. The General Construction Work Contract (Contract # GC-1) is required to submit a construction and submittal schedule based on the milestone dates to the Construction Manager for review and comment no later than 2 weeks after a Notice to Proceed for the work is issued. The other prime contractors have 10 days to provide their duration schedule to the Construction Manager. The Construction manager will then distribute to the General Construction Contractor to provide a final construction schedule.
14. Unless a specific item or material is noted as to remain the Owner's property or to become the Contractor's property, any material having salvage or reuse value shall be inspected by the Owner. If the Owner wishes to retain this material, it shall be turned over to him on the site where directed. If the Construction Manager designates the material as scrap, it shall become the contractor's property and removed from the site. Material having salvage value shall be carefully removed.



15. When the building is occupied and fire alarm and safety system work is in progress, the Electrical Contractor shall continuously maintain the existing building's fire alarm and detection system and exit, and emergency lighting system or provisions must be made by the Electrical Contractor to provide equivalent safety. Electrical Contractor must notify the local fire department of any non-operating systems.
16. Electrical Contractor (Contract # EC-1) shall be responsible for all electrical conduit and associated work. The Electrical contractor shall coordinate with all local utilities for installation of their work. The Sitework contractor shall excavate and backfill trenches required for site lighting and associated conduit. Electrical Contractor shall provide and install all conduit.
17. All personnel required to be on site shall have all required personnel protective equipment on at all times.
18. All personnel on site shall at all times have a photo ID displayed where visible. Those without will be removed from site at once. If the same individual fails to have the ID a second time they will be removed from site and not be allowed back on site.

#### 1.15 TESTING

- A. Required testing and test procedures are indicated under each Division of the Technical Specifications. Other testing shall be performed per generally accepted standards.
- B. The Architect shall reserve the right to require additional information as is deemed necessary to fully evaluate testing results.
- C. The Owner shall employ and pay for an independent testing and inspection agency for testing requirements of their work as assigned by this scope of work. All testing shall be per technical specification requirements. The Prime Contractor requiring testing will notify the Construction Manager at least 48 hours in advance of the required testing to allow for coordination and scheduling. Failure to give sufficient notice will require the prime contractor to pay for alternate testing to satisfy the specification.

#### 1.16 WORK SEQUENCE

- A. The Work will be conducted to provide the least possible interference to the activities of the Owner's personnel.
- B. All contract scopes of work in unoccupied areas of work can be performed weekdays from 7:00 AM to 3:30 PM unless otherwise noted. It is each contractor responsibility to work two shifts to complete the work by the substantial completion date. Work cannot be performed in occupied areas. Work shall be scheduled off-hours, vacations and weekends for occupied areas. A Construction Manager Superintendent must be on site at all times that work is being performed. If a contractor fails to maintain the progress as indicated by the milestone schedule by no other fault but its own and requires overtime to complete the work; the contractor shall make arrangements with the Construction Manager 24 hours in advance and pay for a Construction Manager's superintendent at \$125.00 per hour. If the cause for delay is multi-contract, then the costs shall be distributed evenly among the prime contractors. Advise the Construction Manager 48 hours prior to commencing work inside the building.
- C. Coordination of any utility and/or power interruption must be done with the Construction Manager. Shutdowns must occur during off-hours and on days when the building is not occupied by the owner.
- D. Construction access to the site shall be limited to those designated for contractor's personnel, equipment and deliveries by the Owner. Contractors' staging, parking and storage shall be coordinated by the Construction Manager.



- E. Each Contractor shall inspect the site and review the AHERA report on file for the presence of asbestos. Unless otherwise noted, there will be asbestos containing material in place that will require work to take place in the vicinity of, around and/or next to. Each prime contractor that will be working above ceilings, demolishing, in crawl spaces, boiler rooms and all other areas that may contain asbestos per the AHERA report, shall employ "Allied Trades: certified/licensed tradesman as part of the onsite workforce".

#### 1.17 OCCUPANCY REQUIREMENTS

- A. The General Work Contractor shall provide indoor air quality management as specified by the Department of Labor and OSHA for the building, when the building is enclosed, as determined by the Construction Manager.
  - 1. Provide an exhaust air system for the project indoor areas that could produce fumes, VOC's off-gasses, gasses, dusts, mists, or other emissions.
  - 2. Exhaust air system for the project areas that could produce emissions listed in Paragraph 1 shall be utilized.
  - 3. Provide temporary partitions and air seals to prevent the migration of airborne contaminants from unoccupied areas to occupied areas when applicable.
- B. Quality assurance:
  - 1.
  - 2. Maintain a negative pressure between the work area and the space surrounding the work area.
  - 3. Before start of work, submit a design for the exhaust air system. Do not begin work until approval by the Owner is obtained.
    - a. The number of machines required.
    - b. Location of the machines in the workspace.
    - c. Description of the methods used to test air flow and pressure differential.
- C. System operation:
  - 1. A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated in accordance with the following applicable standards.
  - 2. Exhaust air system shall operate for a minimum of 72 hours after work is completed, or until all materials have cured sufficiently as to stop out gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
  - 3. Maintain fifty (50) feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.

1.18 PROJECT MILESTONE SCHEDULE The Work shall be conducted in accordance with the following schedule:

- 1. General Work Contractor (GC-1):
  - a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
  - b. Commencement of Off-Site Activities: Immediately following Contract Award.
  - c. Commencement of On-Site Activities:
    - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
    - 2) Wallkill Senior High School



- a) Interior Improvements construction start date: June 26, 2023.
- 3) John G. Borden Middle School
  - a) Interior Improvements construction start date: June 26, 2023.
- 4) Ostrander Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 5) Plattekill Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 6) Leptondale Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- d. Construction Activities:
  - 1) Prior to June 27, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- f. Submittals: Provide all submittals within 30 days after award of contract.
- a. Substantial Completion Date:
  - 1) Wallkill Senior High School: September 1, 2023
  - 2) John G. Borden Middle School: September 1, 2023
  - 3) Ostrander Elementary School: September 1, 2023
  - 4) Leptondale Elementary School: September 1, 2023
  - 5) Plattekill Elementary School: September 1, 2023.
- b. Owner / End User Access – Facility Use: By September 4, 2023
- c. Final completion date: 60 days after Substantial Completion



2. Mechanical Work Contractor (HVAC-1):

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
- b. Commencement of Off-Site Activities: Immediately following Contract Award.
- c. Commencement of On-Site Activities:
  - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
  - 2) Wallkill Senior High School
    - a) Interior Improvements construction start date: June 26, 2023.
  - 3) John G. Borden Middle School
    - a) Interior Improvements construction start date: June 26, 2023.
  - 4) Ostrander Elementary School
    - a) Interior Improvements construction start date: July 1, 2024.
  - 5) Plattekill Elementary School
    - a) Interior Improvements construction start date: July 1, 2024.
  - 6) Leptondale Elementary School
    - a) Interior Improvements construction start date: July 1, 2024.
- d. Construction Activities:
  - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.



- f. Submittals: Provide all submittals within 30 days after award of contract.
  - g. Substantial Completion Date:
    - 1) Wallkill Senior High School: September 1, 2023
    - 2) John G. Borden Middle School: September 1, 2023
    - 3) Ostrander Elementary School: September 1, 2023
    - 4) Leptondale Elementary School: September 1, 2023
    - 5) Plattekill Elementary School: September 1, 2023.
  - h. Owner / End User Access – Facility Use: By September 4, 2023 & September 2, 2024 (for work in the summer of 2024)
  - i. Final completion date: 60 days after Substantial Completion
3. Site Work Contractor (SC-1):
- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
  - b. Commencement of Off-Site Activities: Immediately following Contract Award.
  - c. Commencement of On-Site Activities:
    - 1) Field work interior to buildings, prior to May 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
    - 2) Wallkill Senior High School
      - a) Exterior Improvements construction start date: May 29, 2023.
  - d. Construction Activities:
    - 1) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:
  - e. Construction Activities: Daily Work Limits
    - 1) Monday – Saturday: On-Site (Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
    - 2) Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
    - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - f. Submittals: Provide all submittals within 30 days after award of contract.
  - g. Substantial Completion Date:
    - 1) Wallkill Senior High School: September 1, 2023



- h. Owner / End User Access – Facility Use: By September 4, 2023
  - i. Final completion date: 60 days after Substantial Completion
4. Site Work Contractor (SC-2):
- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
  - b. Commencement of Off-Site Activities: Immediately following Contract Award.
  - c. Commencement of On-Site Activities:
    - 1) Field work interior to buildings, prior to April 3, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner’s representative and may not interfere with academic or other related educational activities.
    - 2) Wallkill Senior High School
      - a) Interior Improvements construction start date: April 3, 2023.
  - d. Construction Activities:
    - 1) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E’s written approval on the following dates:
  - e. Construction Activities: Daily Work Limits
    - 1) Monday – Saturday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
    - 2) Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
    - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - f. Submittals: Provide all submittals within 30 days after award of contract.
  - g. Substantial Completion Date:
    - 1) Wallkill Senior High School: September 1, 2023
  - h. Owner / End User Access – Facility Use: By September 4, 2023
  - i. Final completion date: 60 days after Substantial Completion
5. Site Work Contractor (SC-3):
- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
  - b. Commencement of Off-Site Activities: Immediately following Contract Award.



c. Commencement of On-Site Activities:

- 1) Field work interior to buildings, prior to May 29, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
- 2) Wallkill Senior High School
  - a) Interior Improvements construction start date: May 29, 2023.
- 3) Ostrander Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.

d. Construction Activities:

- 1) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:

e. Construction Activities: Daily Work Limits

- 1) Monday – Saturday: On-Site (Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
- 2) Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.

f. Submittals: Provide all submittals within 30 days after award of contract.

g. Substantial Completion Date:

- 1) Wallkill Senior High School: September 1, 2023
- 2) Ostrander Elementary School: September 1, 2023

h. Owner / End User Access – Facility Use: By September 4, 2023

i. Final completion date: 60 days after Substantial Completion

6. Electrical Work Contractor (EC-1):

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
- b. Commencement of Off-Site Activities: Immediately following Contract Award.
- c. Commencement of On-Site Activities:
  - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.



- 2) Wallkill Senior High School
  - a) Interior Improvements construction start date: June 26, 2023.
- 3) John G. Borden Middle School
  - a) Interior Improvements construction start date: June 26, 2023.
- 4) Ostrander Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 5) Plattekill Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 6) Leptondale Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- d. Construction Activities:
  - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- f. Submittals: Provide all submittals within 30 days after award of contract.
- g. Substantial Completion Date:
  - 1) Wallkill Senior High School: September 1, 2023
  - 2) John G. Borden Middle School: September 1, 2023
  - 3) Ostrander Elementary School: September 1, 2023
  - 4) Leptondale Elementary School: September 1, 2023
  - 5) Plattekill Elementary School: September 1, 2023.
- h. Owner / End User Access – Facility Use: By September 4, 2023
- i. Final completion date: 60 days after Substantial Completion



7. Plumbing Work Contractor (PC-1):

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
- b. Commencement of Off-Site Activities: Immediately following Contract Award.
- c. Commencement of On-Site Activities:
  - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
  - 2) Plattekill Elementary School
    - a) Interior Improvements construction start date: June 26, 2023.
- d. Plumbing Construction Activities:
  - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- f. Submittals: Provide all submittals within 30 days after award of contract.
- g. Substantial Completion Date:
  - 1) Plattekill Elementary School: September 1, 2023.
- h. Owner / End User Access – Facility Use: By September 4, 2023
- i. Final completion date: 60 days after Substantial Completion

8. Secure Vestibule Contractor:

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
- b. Commencement of Off-Site Activities: Immediately following Contract Award.



c. Commencement of On-Site Activities:

- 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
- 2) Wallkill Senior High School
  - a) Interior Improvements construction start date: June 26, 2023.
- 3) John G. Borden Middle School
  - a) Interior Improvements construction start date: June 26, 2023.
- 4) Ostrander Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 5) Plattekill Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.
- 6) Leptondale Elementary School
  - a) Interior Improvements construction start date: June 26, 2023.

d. Construction Activities:

- 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
- 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT be allowed without Owner and A/E's written approval on the following dates:

e. Construction Activities: Daily Work Limits

- 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
- 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.

f. Submittals: Provide all submittals within 30 days after award of contract.

g. Substantial Completion Date:

- 1) Wallkill Senior High School: September 1, 2023
- 2) John G. Borden Middle School: September 1, 2023
- 3) Ostrander Elementary School: September 1, 2023
- 4) Leptondale Elementary School: September 1, 2023



- 5) Plattekill Elementary School: September 1, 2023.
  - h. Owner / End User Access – Facility Use: By September 4, 2023
  - i. Final completion date: 60 days after Substantial Completion
9. Auditorium Seating Contractor:
- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
  - b. Commencement of Off-Site Activities: Immediately following Contract Award.
  - c. Commencement of On-Site Activities:
    - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner’s representative and may not interfere with academic or other related educational activities.
    - 2) John G. Borden Middle School
      - a) Interior Improvements construction start date: August 7, 2023.
  - d. Construction Activities:
    - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
    - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E’s written approval on the following dates:
  - e. Construction Activities: Daily Work Limits
    - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
    - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
    - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - f. Submittals: Provide all submittals within 30 days after award of contract.
  - g. Substantial Completion Date:
    - 1) John G. Borden Middle School: August 18, 2023
  - h. Owner / End User Access – Facility Use: By September 4, 2023
  - i. Final completion date: 60 days after Substantial Completion



10. Playground Contractor:

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).
- b. Commencement of Off-Site Activities: Immediately following Contract Award.
- c. Commencement of On-Site Activities:
  - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
  - 2) Ostrander Elementary School
    - a) Interior Improvements construction start date: June 26, 2023.
- d. Construction Activities:
  - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- f. Submittals: Provide all submittals within 30 days after award of contract.
- g. Substantial Completion Date:
  - 1) Ostrander Elementary School: September 1, 2023
- h. Owner / End User Access – Facility Use: By September 4, 2023
- i. Final completion date: 60 days after Substantial Completion

11. Roofing Contractor (RC-1, RC-2, & RC-3):

- a. Contract Award Date: Tentatively Schedule for March 15, 2023 (Regular Wallkill Board of Education Meeting).



- b. Commencement of Off-Site Activities: Immediately following Contract Award.
- c. Commencement of On-Site Activities:
  - 1) Field work interior to buildings, prior to June 26, 2023, for submittals and other preparation activities: Immediately upon required insurances being in place. Field Work to be coordinated with owner's representative and may not interfere with academic or other related educational activities.
  - 2) Ostrander Elementary School
    - a) Interior Improvements construction start date: June 26, 2023.
  - 3) Plattekill Elementary School
    - a) Interior Improvements construction start date: June 26, 2023.
  - 4) Leptondale Elementary School
    - a) Interior Improvements construction start date: June 26, 2023.
- d. Construction Activities:
  - 1) Prior to June 26, 2023 and after September 1, 2023, no interior work can be completed within any of the district buildings between the hours of 7:00 AM and 3:30 PM without Owner and A/E written approval.
  - 2) During Testing: On-Site construction activities between the hours of 7:00 AM and 3:30 PM with motorized equipment, delivery of construction material or any construction practice that may be distracting to students will NOT to be allowed without Owner and A/E's written approval on the following dates:
- e. Construction Activities: Daily Work Limits
  - 1) Monday – Friday: On-Site (Interior / Exterior) construction activities between the hours of 7:00 AM and 10:00 PM with motorized equipment, delivery of construction material or any construction practice. Written Permission from Owner required for additional work hours. Provide Owner with 72 Hour Notice before proposed work.
  - 2) Saturday – Sunday: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
  - 3) Federal Holidays: Written Permission from Owner required for Saturday and Sunday work. Provide Owner with 72 Hour Notice before proposed work.
- f. Submittals: Provide all submittals within 30 days after award of contract.
- g. Substantial Completion Date:
  - 1) Ostrander Elementary School: September 1, 2023
  - 2) Leptondale Elementary School: September 1, 2023
  - 3) Plattekill Elementary School: September 1, 2023.
- h. Owner / End User Access – Facility Use: By September 4, 2023
- i. Final completion date: 60 days after Substantial Completion



#### 1.19 ALLOWANCES

- A. See Specification Section 01 21 00.

#### 1.20 ALTERNATES

- A. The Contractor shall state where requested on the Bid Form the amount to be added to or deducted from the base bid for the alternates described in Section 01 23 00 - Alternates.

END OF SECTION 01 10 00



## **SECTION 01 21 00 - ALLOWANCES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
  - 1. Contingency allowances.

#### **1.3 ACTION SUBMITTALS**

- A. Submit proposals for purchase of products or systems included in allowances.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

#### **1.5 COORDINATION**

- A. Coordinate allowance items with other portions of the Work.

#### **1.6 CONTINGENCY ALLOWANCES**

- A. Use the contingency allowance only as directed by Architect for Owner's purposes.
- B. Allowance shall include cost to Contractor of specific products and materials under allowance and shall include taxes, freight, and delivery to Project site. Contractor's costs for receiving and handling at Project site, labor, installation, and similar costs related to products and materials under allowance shall be included as part of the allowance.



- C. Overhead and profit related to the allowance shall be included as part of the Contract Sum and not part of the allowance.

#### 1.7 ALLOWANCE PROCEDURES

- A. Authorization for use of allowances is documented through Allowance Access Authorization form provided in the Project Manual, accompanied by substantiating data.
- B. At Project closeout, unused amounts remaining in the allowances will be credited to Owner by Change Order.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

#### 3.2 SCHEDULE OF ALLOWANCES - GENERAL WORK CONTRACT (GC-1)

- A. Allowance No. 1: Contingency Allowance: Include the sum of **\$50,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

#### 3.3 SCHEDULE OF ALLOWANCES - PLUMBING WORK CONTRACT (PC-1)

- A. Allowance No. 2: Contingency Allowance: Include the sum of **\$5,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

#### 3.4 SCHEDULE OF ALLOWANCES - MECHANICAL WORK CONTRACT (HVAC-1)

- A. Allowance No. 3: Contingency Allowance: Include the sum of **\$50,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

#### 3.5 SCHEDULE OF ALLOWANCES - ELECTRICAL WORK CONTRACT (EC-1)

- A. Allowance No. 4: Contingency Allowance: Include the sum of **\$30,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.



3.6 SCHEDULE OF ALLOWANCES - SITE WORK CONTRACT (SC-1)

- A. Allowance No. 5: Contingency Allowance: Include the sum of **\$175,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

3.7 SCHEDULE OF ALLOWANCES - SITE WORK CONTRACT (SC-2)

- A. Allowance No. 6: Contingency Allowance: Include the sum of **\$35,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

3.8 SCHEDULE OF ALLOWANCES - SITE WORK CONTRACT (SC-3)

- A. Allowance No. 7: Contingency Allowance: Include the sum of **\$30,000** for use according to Owner's instructions and for hidden and unforeseen conditions discovered during construction.

3.9 SCHEDULE OF ALLOWANCES –ALL CONTRACTS

Allowance	Contract	Type	Amount
1	GC-1	Contingency	\$50,000
2	PC-1	Contingency	\$5,000
3	HVAC-1	Contingency	\$50,000
4	EC-1	Contingency	\$30,000
5	SC-1	Contingency	\$175,000
6	SC-2	Contingency	\$35,000
7	SC-3	Contingency	\$30,000

Attachment: Allowance Access Authorization

END OF SECTION 01 21 00



**ALLOWANCE ACCESS AUTHORIZATION:**

**Project:**

**Architect: Tetra Tech Architects & Engineers**

**Project No. 17597-22001**

**Contractor:**

**AAA No.:**

**Initiation Date:**

**The Allowance is allocated as follows:**

Total original Contract Allowance was:	\$
Amount of Contract Allowance Access previously authorized:	\$
Adjusted Contract Allowance prior to this authorization is:	\$
The amount of available Allowance will Decrease by this Access Authorization:	\$
The remaining Contract Allowance, after this Access Authorization will be:	\$

**Recommended by:**  
**Architect**

**Recommended by:**  
**Construction Manager [if applicable]**

By (Signature): \_\_\_\_\_

By (Signature): \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**Accepted by:**  
**Contractor**

**Approved by:**  
**Owner**

By (Signature): \_\_\_\_\_

By (Signature): \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



**SECTION 01 23 00 - ALTERNATES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for alternates.

**1.3 DEFINITIONS**

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

**1.4 PROCEDURES**

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.



## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF ALTERNATES

#### A. Alternate No. EC-1-1: MIDDLE SCHOOL AUDITORIUM HOUSE LIGHTING

1. This Alternate affects one Contract, as follows:
  - a. Electrical Work Contract (EC-1): By Alternate at the Borden Middle School Auditorium, remove existing luminaires and lighting controls as identified by Key Tag "3" on Drawing BE400. Provide Type 2 and 2EM luminaires and all associated electrical work as identified by Key Note Tag "4" and the Luminaire Schedule on Drawing BE400.
  - b. General Work Contract (GC-1): Not applicable.
  - c. Mechanical Work Contract (HVAC-1): Not applicable
  - d. Plumbing Contract (PC-1): Not applicable
  - e. Site Work Contract (SC-1): Not applicable
  - f. Site Work Contract (SC-2): Not applicable
  - g. Site Work Contract (SC-3): Not applicable

#### B. Alternate No. SC-1-1: SOD AT HIGH SCHOOL JV BASEBALL FIELD

1. This Alternate affects one Contract, as follows:
  - a. Electrical Work Contract (EC-1): Not applicable.
  - b. General Work Contract (GC-1): Not applicable.
  - c. Mechanical Work Contract (HVAC-1): Not applicable
  - d. Plumbing Contract (PC-1): Not applicable
  - e. Site Work Contract (SC-1): In lieu of seed provide sod in area identified at the Senior High School Junior Varsity Baseball Field, on the Site Layout Drawing AC120.
  - f. Site Work Contract (SC-2): Not applicable
  - g. Site Work Contract (SC-3): Not applicable



C. Alternate No. SC-3-1: HIGH SCHOOL AREA “D” FIELD DRAINAGE IMPROVEMENTS

1. This Alternate affects one Contract, as follows:
  - a. Electrical Work Contract (EC-1): Not applicable.
  - b. General Work Contract (GC-1): Not applicable.
  - c. Mechanical Work Contract (HVAC-1): Not applicable
  - d. Plumbing Contract (PC-1): Not applicable
  - e. Site Work Contract (SC-1): Not applicable
  - f. Site Work Contract (SC-2): Not applicable
  - g. Site Work Contract (SC-3): By Alternate, remove scope associated with improvements identified at the Wallkill Senior High School Don Andrews Field, Plan Area D. Refer to Site Drawings AC123, AC133, AC143.

END OF SECTION 01 23 00



## **SECTION 01 25 00 - SUBSTITUTION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor,
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Owner.

#### **1.4 ACTION SUBMITTALS**

- A. Substitution Requests: Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use the “Request for Substitution” form attached to this Specification Section. Complete all sections of the form.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Information to support identification of the proposed substitution as “for Cause” or “for Convenience”.
    - b. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - c. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.



- d. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - f. Samples, where applicable or requested.
  - g. Certificates and qualification data, where applicable or requested.
  - h. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - i. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - j. Evidence of compliance with building code in effect for Project.
  - k. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - l. Cost information, including a proposal of change, if any, in the Contract Sum.
  - m. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - n. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation. Such additional information or documentation may include detailed side-by-side comparison charts of the specified product and the proposed substitution, and other data. Only one substitution request for each product will be considered. Architect will make final determination as to whether the substitution is "for Cause" or "for Convenience".
- a. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution.
  - b. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.



## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change.
  - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution is compatible with other portions of the Work.
    - e. Requested substitution has been coordinated with other portions of the Work.
    - f. Requested substitution provides specified warranty.
    - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 15 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
  - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:



- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Substitution request is fully documented and properly submitted.
- e. Requested substitution will not adversely affect Contractor's construction schedule.
- f. Requested substitution is compatible with other portions of the Work.
- g. Requested substitution has been coordinated with other portions of the Work.
- h. Requested substitution provides specified warranty.
- i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

### PART 3 - EXECUTION (Not Used)

Attachment: Request for Substitution Form

END OF SECTION 01 25 00





## Request for Substitution

This form must be completely filled in with all relevant data by the Prime Contractor and submitted to the Architect in accordance with Project Manual Requirements for consideration before any request to change the drawing or specification requirements will be considered.

### REFERENCE DATA

Project name: \_\_\_\_\_ Date of Request: \_\_\_\_\_  
Location: \_\_\_\_\_ Architect's Project No.: \_\_\_\_\_  
Request by Contractor: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact person: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

### SUBSTITUTION REQUEST DATA

(Provide statement indicating why specified product, fabrication or installation cannot be provided.)

SUBSTITUTION REQUESTED IS FOR: \_\_\_\_\_ Reason for request: \_\_\_\_\_

☐ Named product. \_\_\_\_\_

☐ Product type, material, finish or formulation. \_\_\_\_\_

☐ Fabrication or installation methods. \_\_\_\_\_

Note whether substitution is for cause or convenience: \_\_\_\_\_

PRODUCT / MATERIAL / METHOD FOR WHICH SUBSTITUTION IS REQUESTED IS SHOWN ON THE FOLLOWING DOCUMENTS:

Specification: Section No.: \_\_\_\_\_ Page(s): \_\_\_\_\_ Paragraph/Item No.: \_\_\_\_\_

Drawings: (List No.'s of all Drawings affected): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### DETAILED COMPARISON

Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### COST/BENEFIT ANALYSIS

Describe in detail any alteration to any other part of the Works required by use of the requested substitution, including work by other Prime Contractors:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If applicable total net cost of any such other project required alterations, including overhead and profit: \$ \_\_\_\_\_  
(Indicate if cost is an "Add" or "Deduct" to contract sum.

Benefits to Owner other than financial: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Schedule impact (Note any impact on project schedule by proposed substitution): \_\_\_\_\_

\_\_\_\_\_



#### **ADDITIONAL INFORMATION REQUIRED**

PRIME CONTRACTOR TO PROVIDE ADDITIONAL INFORMATION AS NECESSARY AND ATTACH THE FOLLOWING INFORMATION:

1. Manufacturer's technical data sheets on proposed products, including test results as applicable.
2. Manufacturer's standard form of warranty.
3. Letter on manufacturer's letterhead stating that manufacturer will warrant products as specified, if specification requires specific warranties not included in manufacturer's standard form of warranty.
4. Letter(s) from other Prime Contractor(s) responsible for works affected by proposed substitution which state the total cost(s) of all such work, if any alteration of other work is required. Prime Contractor submitting this Request for Substitution will be responsible to fully reimburse the Owner for all such additional costs; processed via a deduct Change Order.

#### **CONTRACTOR'S CERTIFICATION**

1. BY SUBMISSION OF THIS SUBSTITUTION REQUEST AND PER SIGNATURE BELOW, CONTRACTOR CERTIFIES THIS SUBSTITUTION REQUEST HAS BEEN REVIEWED AND APPROVED BY THE CONTRACTOR IN ACCORDANCE WITH THE PROJECT MANUAL REQUIREMENTS.
2. BY SUBMISSION OF THIS SUBSTITUTION REQUEST AND PER SIGNATURE BELOW CONTRACTOR CERTIFIES THE PROPOSED SUBSTITUTION COMPLIES WITH ALL APPLICABLE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND REFERENCED CODES AND STANDARDS.
3. BY SUBMISSION OF THIS SUBSTITUTION REQUEST AND PER SIGNATURE BELOW CONTRACTOR HEREBY WAIVES ALL RIGHTS TO ADDITIONAL COMPENSATION OR TIME THAT MAY SUBSEQUENTLY BECOME NECESSARY BECAUSE OF FAILURE OF PROPOSED MATERIAL TO PRODUCE THE INDICATED AND REQUIRED RESULTS.

Name of Authorized Contractor Representative: \_\_\_\_\_

Signature of Authorized Contractor Representative: \_\_\_\_\_

Name of Contractor \_\_\_\_\_

Date \_\_\_\_\_



## **SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

#### **1.3 MINOR CHANGES IN THE WORK**

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, via the electronic form procedures outlined in Division 01 Section "Project Management and Coordination" and during the preconstruction conference.

#### **1.4 PROPOSAL REQUESTS**

- A. Owner-Initiated Proposal Requests: Architect will issue a description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time, via the electronic form procedures outlined in Division 01 Section "Project Management and Coordination" and during preconstruction conference. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Unless otherwise noted, within 14 days after receipt of Proposal Request, submit a quotation listing adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - c. Include costs of labor and supervision directly attributable to the change.



- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may submit a request for a change to the Architect through Construction Manager.
  - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - 4. Include costs of labor and supervision directly attributable to the change.
  - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - 6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  - 7. Proposal Request Form: Use form acceptable to Architect.

## 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Division 01 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Division 01 Section "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

## 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request response, Architect will issue a Change Order for signatures of Owner, Architect, Construction Manager and Contractor .



## 1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction Change Directive contains a description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00



## **SECTION 01 29 00 - PAYMENT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

#### **1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
- B. AIA Document: Current, authorized editions of standard forms issued by the American Institute of Architects (AIA).
  - 1. Where AIA Documents are identified in this Section, the use of facsimiles of AIA documents or non-AIA documents is prohibited.

#### **1.4 SCHEDULE OF VALUES**

- A. Submit the schedule of values to Architect through Construction Manager at earliest possible date, but no later than fourteen days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content:
  - 1. Use AIA Document G703 as form for schedule of values, with entries typewritten. Unless noted otherwise, provide the following:
    - a. Subschedules for Separate Elements of Work: Provide subschedules for each building.
      - 1) List allowances on subschedules only where exclusively part of separate element of work.
    - b. Summary Schedule: Provide summary schedule listing each subschedule and its total and each allowance; total of all subschedules and allowances shall equal the Contract Sum.



2. Identification: Include the following Project identification on the schedule of values:
  - a. Project name and location.
  - b. Architect's project number.
  - c. Contractor's name and address.
  - d. Date of submittal.
3. Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide line item(s) for each Specification Section.
4. Arrange the schedule of values to indicate the following for each item listed, completing columns A, B and C of AIA Document G703:
  - a. Column A: Indicate Specification Section number.
  - b. Column B: Indicate Specification Section title, and provide separate line items for labor and materials.
  - c. Column C: Provide separate line item dollar values for labor and materials. Round amounts to nearest whole dollar.
5. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment. In addition to line items for each applicable specification section, include the following:
  - a. Multiple line items for amounts in excess of five percent of Contract Sum, broken out to subcomponents equaling not greater than five percent each.
  - b. Project Startup:
    - 1) Include separate line items for project startup requirements, including the following separate line items:
      - a) Insurance, based on actual invoice amount.
      - b) Performance and payment bonds, based on actual invoice amount.
      - c) Mobilization.
      - d) Temporary facilities and controls.
  - c. Allowances: Provide a separate line item in the schedule of values for each allowance.
  - d. Submittals: Include a minimum of Two percent of Contract Sum.
  - e. Supervision: Include a minimum of Two percent of Contract Sum.
  - f. Safety and Field Reports: Include a minimum of Two percent of Contract Sum.
  - g. Coordination Drawings: Provide a separate line item in the schedule of values for Coordination Drawings. Include a minimum of the following percentages of Contract Sum.
    - 1) Mechanical Contract: Two percent of the Contract Sum.
    - 2) All Other Contracts: One percent of the Contract Sum.



- h. Meetings: Provide a separate line item in the schedule of values for Contractor attendance at meetings. Include a minimum of Two percentage of Contract Sum.
  - i. Wood Blocking: Provide a separate line item in the schedule of values for wood blocking.
  - j. Testing and Balancing (TAB): Include a minimum of Two percent of the Contract Sum (Mechanical Contract: Two percent as separate line items for testing and balancing requirements, as follows:
    - 1) Pre-TAB activities (20 percent of TAB).
    - 2) TAB activities (40 percent of TAB).
    - 3) Final TAB reports. (40 percent of TAB).
  - k. Punch List: Three percent of Contract Sum.
  - l. Project Closeout:
    - 1) Include separate line items for project closeout requirements, as follows:
      - a) Demobilization.
      - b) Warranties.
      - c) Final cleaning.
      - d) Operation and maintenance manuals.
      - e) Project record documents.
      - f) Demonstration and training.
    - 2) The total value of all project closeout line items shall equal to not less than the following:
      - a) Five percent of the Contract Sum.
6. Each item in the schedule of values shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

## 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications as certified by Architect and Construction Manager.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
  - 1. Submit draft copy of Application for Payment **seven** days prior to due date for review by Architect and Construction Manager.
- C. Application for Payment Forms: Use AIA Document G732 and AIA Document G703 as form for Applications for Payment.



- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
1. Entries shall match data on the schedule of values.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received.
  3. Include amounts of fully-executed Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Enter in column F (Materials Presently Stored) of AIA Document G703 the value of materials presently stored for which payment is sought. Recalculate the total of the column at the end of each pay period. This value covers both materials newly stored for which payment is sought and materials previously stored which are not yet incorporated into the Project. Payment by the Owner for stored materials does not result in a deduction from this column. Only as materials are incorporated into the Project is their value deducted from this column and incorporated into column E (Work Completed--This Period.).
  2. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  3. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
- F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Construction Manager.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule.
  4. Certificates of insurance and insurance policies.
  5. Performance and payment bonds.
- H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, two originals and two copies each of the following:
1. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  2. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  3. AIA Document G707, "Consent of Surety to Final Payment."



PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

Attachment: Stored Material Invoicing Documentation

END OF SECTION 01 29 00





**TETRA TECH**  
ARCHITECTS & ENGINEERS

**Stored Materials Invoicing**  
**Documentation**

**Project:** \_\_\_\_\_

**Project No.:** \_\_\_\_\_ **Contract Type:** \_\_\_\_\_

**Contractor:** \_\_\_\_\_ **Subcontractor:** \_\_\_\_\_

**Reason for Request:**

\_\_\_\_\_  
\_\_\_\_\_

**Application for Payment No.:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**1. Material Identification**

Description:

Quantity:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Provide Specific Location of Materials Stored:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**2. Material Value** \$ \_\_\_\_\_

☐ Attach an Invoice or Quantified Statement of Value.

**3. Certificate of Insurance**

☐ Attach a Certificate of Insurance for the above specified materials. Certificate shall name \_\_\_\_\_  
(Name of District)  
as a loss payee with respect to the specified materials.

**4. Transfer of Title**

The Contractor hereby agrees to transfer complete ownership of all listed materials to \_\_\_\_\_  
(Name of District)  
at the time payment is made to Contractor for the above referenced Application for Payment. The Contractor remains responsible for all contractual requirements for the above listed materials including complete installation and providing all warranties.

Signed

Date

\_\_\_\_\_  
\_\_\_\_\_



## **SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Digital data files.
  - 3. Coordination drawings.
  - 4. Owner's Project Representative activities.
  - 5. Electronic form procedures.
  - 6. Requests for Information (RFIs).
  - 7. Project meetings.

#### **1.3 COORDINATION PROCEDURES**

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation. Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components.
  - 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Installation and removal of temporary facilities and controls.
  - 3. Project meetings.
  - 4. Project closeout activities.



- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

#### 1.4 DIGITAL DATA FILES

- A. Architect's Digital Data Files: Upon request, and at Architect's sole discretion, electronic copies of the Contract Drawings may be provided by Architect for Contractor's use in preparing submittals.
  - 1. Architect may furnish Contractor digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
    - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Format: The Contract Drawings may be available in AutoCAD and .pdf formats.
      - 1) Architect's charge for drawings in AutoCAD format: \$50 per drawing.
      - 2) Architect's charge for drawings in .pdf format: \$50 per request.
    - c. Contractor shall fill out and submit a Request for Electronic Drawing Files form included in Project Manual for any drawing files.
    - d. Contractor shall also execute a Terms of Electronic File Transfer (TOFT) included in Project Manual for any drawing files furnished in AutoCAD format.
    - e. The following drawings may be furnished for the appropriate discipline:
      - 1) Site base file drawings.
      - 2) Floor plans.
      - 3) Reflected ceiling plans.

#### 1.5 COORDINATION DRAWINGS

- A. Each Contractor:
  - 1. Participate in the Coordination Drawing process as required to ensure work is coordinated with associated Contractors to fulfill the scope and schedule of the project. Contractors with work in areas where more than one Contractor has Contract Work must participate in coordination process for that area of work.
  - 2. Architect will furnish Contractor with digital media copies of architectural, structural, mechanical, plumbing, and electrical base information, not including drawing sheets or details, at no charge, upon providing Architect with a fully-executed indemnification agreement.



3. At an initial coordination meeting scheduled by the Mechanical Contractor and Construction Manager in accordance with schedule defined in Division 01 Section Multiple Project Summary – Project Schedule, coordinate the schedule of the creation and revision of Coordination Drawings with the Architect, Construction Manager, Owner, and involved Contractors as required to meet the construction schedule.
4. Revise Coordination Drawings identifying work of applicable Contract that requires coordination with building systems or that presents potential interference with existing construction or construction provided by another Contractor. Examples of these components and work include (but are not limited to):
  - a. Systems located above ceilings or integrated into ceiling system such as ducts, piping, lighting, cable trays, electrical conduits, joist cross bracing, structure, supports, fire protection systems, diffusers, grilles, access doors, etc.
  - b. Components of systems installed on roofs requiring roof penetrations, structural support, lightning protection, etc.
  - c. Components suspended or otherwise inside spaces such as gymnasium backstops, light fixtures, ducts, gymnasium dividers, web spaces of trusses with duct/pipe, etc.
  - d. Clearances required for service access or by codes. Show service access locations including brief note such as “service access to filters”.
  - e. Equipment located adjacent to building that may need coordination with landscaping such as dust collectors, transformers, gas metering stations, chillers and condensing units, pads, louvers, etc.
5. Resolution of Conflicts and Interferences:
  - a. Schedule additional coordination meetings through Construction Manager with Architect, Owner, and other Contractors and attend additional coordination meetings as required to fully resolve conflicts and complete process.
  - b. Review draft revisions of respective trades and Owner at subsequent coordination meetings with involved parties. Resolve conflicts and interferences at these meetings.
  - c. Reposition proposed locations of components and equipment in applicable Contracts as required to resolve conflicts and address Owner’s serviceability concerns after review of Coordination Drawings. For exposed work, adjust and coordinate configuration of components to achieve aesthetics consistent with the scope of the Project without increase in Contract Sum.



- d. Notify Construction Manager, Architect, Owner's Representative, and affected Contractors in case of unresolved interferences or conflicts prior to installation of construction. Schedule meetings and take other measures to resolve interferences or conflicts and revise applicable Coordination Drawings as required. Re-process revised Coordination Drawings in accordance with "Processing of Coordination Drawings" below to ensure all Contractors are aware of revisions in Coordination Drawings.
  - e. When all conflicts have been resolved on each complete Coordination Drawing, each applicable Contractor shall digitally sign and date the drawings, and deliver to the Mechanical Contractor for additional distribution. A copy of the signed originals will be stored in the Construction Manager's jobsite offices for reference for the duration of the construction.
  - f. Each Contractor will be provided with a copy of each coordination drawing and may transcribe additional information from the copies stored in the Construction Manager's jobsite offices.
6. Do not proceed with work in Contract in each area until agreement is reached with all Contractors and the Construction Manager, Architect and Owner on exact arrangements for each room or area, unless otherwise directed by the Construction Manager, Architect or Owner.
- a. If Contractor proceeds prior to resolving conflicts and receiving above agreement or direction and conflicts ensue as a result, Contractor must modify installed construction as required to permit other Contractors to proceed with coordinated installation at no change in Contract Sum.

**B. Mechanical Contract:**

- 1. In accordance with the Coordination Drawing creation schedule agreed to as described above, prepare and distribute Coordination Drawings as specified in the Division 23 Sections "Common Work Results for HVAC" and "Ductwork", for all areas with any construction work, including indoor areas and rooms, roofs, and near building areas with mechanical equipment. Consider construction of other Contracts as shown in Contract Documents to avoid conflicts. Prepare and revise the Coordination Drawings in the order and within the schedule agreed upon.
- 2. Coordinate the scheduling of coordination meetings with the project schedule Construction Manager, Architect, involved Contractors, and Owner. Schedule the meetings at the agreed upon schedule.
- 3. Deliver two prints and one electronic file in format as required elsewhere and as agreed to at the initial coordination meeting, of each Coordination Drawing simultaneously to Construction Manager, Architect, Owner, and each Contractor listed below and obtain written dated receipts from other contractors. Include additional print copy and electronic copy to Electrical Contractor, to become "Complete Coordination Drawing" for subsequent distribution and complete final coordination documentation as described below. Submit copy of receipts to Architect and Construction Manager.



4. Duplicate and deliver final complete drawings as required by Division 23 Section "Ductwork."

C. Contractors other than Mechanical Contractor:

1. Obtain Coordination Drawings and prepare draft revisions to Coordination Drawings showing applicable work of respective Contract and indicating perceived conflicts, proposed resolution of conflicts with existing conditions and construction of other Contracts as shown in Coordination Drawings.
2. Revise the Coordination Drawings in the order and within the schedule agreed upon.
3. Obtain Complete Coordination Drawing prints and revise showing components and work of applicable Contract including resolution of conflicts with construction of other Contracts as agreed to and as shown on revised draft Coordination Drawings.
4. Processing of Coordination Drawings: Receive, revise, and deliver Complete Coordination Drawings initially prepared by Mechanical Contractor according to the following sequence as applicable to Project.
5. Each Contractor: Obtain written dated receipt from subsequent recipient of Complete Coordination Drawings and submit copy of receipts to Architect and Construction Manager:
  - a. Mechanical Contract.
  - b. Electrical Contract.
  - c. General Contract.
  - d. Plumbing Contract.
  - e. Roofing Contract.
  - f. Site Contract.

## 1.6 OWNER'S PROJECT REPRESENTATIVE ACTIVITIES

A. Project Representative shall:

1. Serve as liaison between Architect, Contractor[s] and Owner.
2. Perform on-site observations of the progress and quality of the Work as may be reasonably necessary to assist the Architect determine, in general, if the Work is being performed in a manner indicating that the Work when completed will be in conformance with the Contract Documents. Notify the Architect if, in the Project Representative's opinion, Work does not conform to the Contract Documents or requires special inspection or testing.
3. Monitor the Contractor's construction schedules on an ongoing basis and alert the Architect to conditions that may lead to delays in completion of the Work.
4. Coordinate shared access to work areas.



5. Coordinate and issue written approvals for acceptable interruptions of utilities and potentially disruptive activities.
6. Receive and review suggestions proposed by the Contractor, and submit them, together with recommendations, to the Architect.
7. Attend all meetings and report to the Architect on the proceedings.
8. Notify Architect when tests required by the Contract Documents and inspections by authorities having jurisdiction will be performed. Observe tests required by the Contract Documents and inspections by authorities having jurisdiction. Record and report to the Architect on test procedures, inspections, and results. Verify testing is performed in accordance with specified requirements and at appropriate times.
9. Maintain records at the construction site in an orderly manner, including correspondence, Contract Documents, Change Orders, Construction Change Directives, reports of meetings, Shop Drawings, Product Data and similar submittals; supplementary drawings, color schedules and requests for payment; and names, addresses telephone numbers, and email addresses of the Contractors, Subcontractors and principal material suppliers.
10. Maintain a daily log of activities at the site, including weather conditions, nature and location of Work being performed, verbal instructions and interpretations given to the Contractor, and specific observations. Record any occurrence or Work that might result in a claim for a change in Contract Sum or Contract Time. Maintain a list of visitors, their titles, and time and purpose of their visit.
11. Notify the Architect if any portion of the Work requiring Shop Drawings, Product Data or Samples is commenced before such submittals have been approved by the Architect. Receive and log Samples required at the site, notify the Architect when they are ready for examination, record the Architect's action and maintain custody of approved Samples.
12. Review the Contractor's record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications at intervals appropriate to the stage of construction and notify the Architect of any apparent failure by the Contractor to maintain up-to-date records.
13. Review Applications for Payment and forward to the Architect with recommendations for disposition.
14. Assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion.
15. Assist the Architect in receipt and transmittal to the Owner of documentation required of the Contractor at completion of the Work.

B. Project Representative shall not:

1. Authorize deviations from the Contract Documents.
2. Approve submittals or substitute materials or equipment.



3. Personally conduct or participate in tests or third party inspections.
4. Assume any of the responsibilities of the Contractor's superintendent or of Subcontractors.
5. Expedite the Work for the Contractor.
6. Have control over or charge of or be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work.
7. Authorize or suggest that the Owner occupy the Project in whole or in part.

#### 1.7 ELECTRONIC FORM PROCEDURES

- A. Use Architect's electronic form procedures for the following functions:
  1. Request for Information (RFI) forms and logs.
  2. Architect's Supplemental Instruction (ASI) forms and logs. Refer to Division 01 Section "Contract Modification Procedures".
  3. Proposal Request (PR) forms and logs. Refer to Division 01 Section "Contract Modification Procedures".
- B. Contractor and other parties granted access by the Architect to Project electronic form procedures shall follow instructions issued by the Architect during the preconstruction conference.

#### 1.8 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified, via the electronic form procedures outlined.
  1. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of others.
- B. Content of the RFI: Include a detailed description of item needing information or interpretation and the following:
  1. Project number.
  2. RFI number.
  3. Contract number and title.
  4. Name of Contractor.
  5. Name of Contractor's contact person.
  6. Email address of Contractor's contact person.



7. RFI subject.
  8. Question: Fully describe question or information requested. Include:
    - a. Specification Section number and title and related paragraphs, as appropriate.
    - b. Drawing number and detail references, as appropriate.
    - c. Field dimensions and conditions, as appropriate.
    - d. Contractor's suggested resolution. If Contractor's solution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  9. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow reasonable time for Architect's response for each RFI.
1. The following RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for coordination information already indicated in the Contract Documents.
    - d. Requests for adjustments in the Contract Time or the Contract Sum.
    - e. Requests for interpretation of Architect's actions on submittals.
    - f. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager] in writing within seven days of receipt of the RFI response.
- D. On receipt of Architect's action, immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.
- E. Electronic RFI Log: Architect will maintain a tabular log of RFIs organized by RFI number.



## 1.9 PROJECT MEETINGS

- A. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, Construction Manager and Architect, but no later than 15 days after date of Notice of Award.
1. Attendees: Authorized representatives of Owner, Commissioning Authority, Construction Manager, Architect, and their consultants; Contractor and its superintendent; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Designation of key personnel and their duties.
    - b. Lines of communications.
    - c. Bonds and insurance.
    - d. Subcontract list.
    - e. Schedule of values.
    - f. Payment request estimate.
    - g. Applications for Payment.
    - h. Contractor's construction schedule.
    - i. Submittals.
    - j. Electronic form procedures (RFIs, ASIs, PRs).
    - k. Procedures for processing Change Orders and Construction Change Directives.
    - l. Quality control.
    - m. Adjoining properties.
    - n. Project schedule.
    - o. Contractor review of Contract Documents, including Drawings and Specifications.
    - p. Project meetings.
    - q. Project closeout procedures.
    - r. Electronic drawings.
    - s. AIA and Word documents.
  3. Report: Construction Manager will prepare and distribute meeting report.
- B. Site Preconstruction Conference: Construction Manager will schedule and conduct a site preconstruction conference, at a time convenient to Owner, Construction Manager and Architect.
1. Attendees: Authorized representatives of Owner, Owner's testing agency, Construction Manager, Architect, and their consultants; Geotechnical Engineer of Record; Contractor and its superintendent; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance, including the following:
    - a. Designation of key personnel and their duties.
    - b. Lines of communication.



- c. Electronic form procedures (RFIs, ASIs, PRs).
  - d. Submittal procedures.
  - e. Subcontracts.
  - f. Construction schedule.
  - g. Temporary facilities and controls.
  - h. Use of premises.
  - i. Permits.
  - j. Soil erosion and sediment control.
  - k. Tree protection.
  - l. Procedures for testing and inspecting.
  - m. Roles and responsibilities of each party.
  - n. Topsoil.
  - o. Seeding/sodding.
  - p. Planting.
  - q. Concrete.
  - r. Retaining walls.
  - s. Planting islands.
  - t. Railings.
  - u. Staging removal.
  - v. Track/synthetic turf.
3. Report: Construction Manager will prepare and distribute meeting report.
- C. Structural Preconstruction Conference: Construction Manager will schedule and conduct a structural preconstruction conference, at a time convenient to Owner, Construction Manager and Architect.
- 1. Attendees: Authorized representatives of Owner, Owner's testing agency, Construction Manager, Architect, and their consultants; Geotechnical Engineer of Record; Contractor and its superintendent; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  - 2. Agenda: Discuss items of significance, including the following:
    - a. Procedures for testing and inspecting.
    - b. Submittals.
    - c. Testing, placing, curing and finishing structural concrete.
    - d. Hot/cold weather concrete construction.
    - e. Fabrication and erection of structural steel.
    - f. Attaching metal floor and roof deck, as applicable.
    - g. Procedures for constructing composite slabs, as applicable.
    - h. Procedures for unit masonry control joints, grouting, and workmanship.
    - i. Hot/cold weather masonry construction.
    - j. Cold formed metal framing.
    - k. Roles of each party regarding the above work items.
  - 3. Report: Construction Manager will prepare and distribute meeting report.



- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Review each Specification Section for requirements for preinstallation conferences.
    - a. No later than 15 days after date of Notice of Award, submit to Architect complete listing of preinstallation conferences to be held.
  2. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Construction Manager, Commissioning Authority and Project Representative of scheduled meeting dates.
  3. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Deliveries.
    - c. Submittals.
    - d. Review of mockups.
    - e. Time schedules.
    - f. Weather limitations.
    - g. Manufacturer's written instructions.
    - h. Warranty requirements.
    - i. Compatibility of materials.
    - j. Acceptability of substrates.
    - k. Temporary facilities and controls.
    - l. Space and access limitations.
    - m. Testing and inspecting requirements.
    - n. Installation procedures.
    - o. Coordination with other work.
    - p. Required performance results.
    - q. Protection of adjacent work.
  4. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  5. Reporting: Distribute report of the meeting to each party present and to other parties requiring information.
  6. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.



E. Progress Meetings: Construction Manager will conduct progress meetings at biweekly intervals, unless otherwise necessitated.

1. Attendees: In addition to representatives of Owner, Commissioning Authority, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review report of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
  - a. Review present and future needs of each entity present, including the following:
    - 1) Report of progress since previous meeting.
    - 2) Architect/Engineer discussion items.
    - 3) Status of ASIs, PRs, Change Orders.
    - 4) Status of submittals.
    - 5) Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule.
      - a) Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - b) Review schedule for next period.
    - 6) Date of Substantial Completion.
    - 7) Status of RFIs.
    - 8) Owner discussion items.
    - 9) Discussion items for each Contract.
    - 10) General and administrative items, including such items as:
      - a) Project documentation.
      - b) Prohibitions.
      - c) Identification cards.
      - d) Separation.
      - e) Egress.
      - f) Conservation.



3. Report: Construction Manager will prepare and distribute the meeting report to each party present and to parties requiring information.
- F. Health and Safety Committee Meetings: Owner will conduct health and safety committee meetings as needed, in accordance with requirements of Regulations of the Commissioner of Education, Part 155 (8 NYCRR 155), Section 155.5(c)(2).
1. Attendees: In addition to representatives of the Owner and Construction Manager, each contractor shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance, including the following:
    - a. Health and safety matters related to the construction project.
  3. Report: Owner will prepare and distribute meeting report to each party present and to parties requiring information.
- G. Project Closeout Conference: Construction Manager will schedule and conduct a project closeout conference, at a time convenient to Owner, Construction Manager and Architect, but no later than 90 days prior to each scheduled date of Substantial Completion.
1. Attendees: Authorized representatives of Owner, Commissioning Authority, Construction Manager, Architect, and their consultants; Contractor and its superintendent; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Owner's occupancy requirements.
    - h. Responsibility for removing temporary facilities and controls.
  3. Report: Construction Manager will prepare and distribute meeting report.

## PART 2 - PRODUCTS (Not Used)



PART 3 - EXECUTION (Not Used)

Attachment: Request for Electronic Drawing Files  
Terms of Electronic File Transfer (TOFT)

END OF SECTION 01 31 00





**TETRA TECH**  
ARCHITECTS & ENGINEERS

Cornell Business + Technology Park  
10 Brown Road  
Ithaca, New York 14850  
Tel. (607) 277-7100  
Fax (607) 277-1410

**Request for Electronic Drawing Files** – Business Office

---

Prime Contractor Name:

Prime Contractor Address:

Contact to Receive Invoice:

Project Name:

Project Number:

Project Manager:

Drawing Type: Some drawings may be only available as a PDF file and may NOT be available as an AutoCAD file.

☐ PDF Files (\$50 per request)

☐ AutoCAD type files (\$50 per file)

For PDF files:

List each Drawing # Requested – If requesting entire set note “All”.

For AutoCAD files:

Number of drawing files

List each Drawing # Requested

Contractor Signature \_\_\_\_\_





**TETRA TECH**  
ARCHITECTS & ENGINEERS

Cornell Business + Technology Park  
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Ithaca, New York 14850  
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**Request for Electronic Drawing Files** – Business Office

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Prime Contractor Address:

Contact to Receive Invoice:

Project Name:

Project Number:

Project Manager:

Drawing Type: Some drawings may be only available as a PDF file and may NOT be available as an AutoCAD file.

☐ PDF Files

☐ AutoCAD type files

For PDF files:

List each Drawing # Requested – If requesting entire set note “All”.

For AutoCAD files:

Number of drawing files

List each Drawing # Requested

Contractor Signature \_\_\_\_\_





Cornell Business + Technology Park  
10 Brown Road  
Ithaca, New York 14850  
Tel. (607) 277-7100  
Fax (607) 277-1410

### **Terms of Electronic File Transfer (TOFT)**

.....

The purpose of this document is to establish the terms of use and liability related to the electronic transfer of files from Tetra Tech Engineers, Architects & Landscape Architects, P.C. d/b/a Tetra Tech Architects & Engineers (hereinafter "Tetra Tech") to the Recipient (designated below). This Agreement covers all electronic files transmitted to the Recipient, associated with the Project(s) listed below, that are not otherwise covered by a contractual agreement to provide such files.

**Project(s) & Project #s:** \_\_\_\_\_  
\_\_\_\_\_

**Recipient of Electronic Files:**

Company Name: \_\_\_\_\_  
Company Address: \_\_\_\_\_  
\_\_\_\_\_

**Terms of Electronic File Transfer:**

1. The electronic files (Files) furnished by Tetra Tech to the person or entity receiving the Files (Recipient) are provided only for the convenience of the Recipient, and only for its sole use. RECIPIENT AGREES THAT, BY OPENING THE PACKAGE CONTAINING THE FILES, RECIPIENT SHALL BE BOUND BY AND SUBJECT TO THE TERMS OF THIS DISCLAIMER.
2. Recipient recognizes that the Files may not be adequate or appropriate for Recipient's needs. In the case of any defects in the Files or any discrepancies between the Files and the hardcopy of the Files bearing the seal of Tetra Tech's professional registrant (if applicable), the sealed hardcopy shall govern. Recipient accepts the Files on an "as-is" basis, with any and all faults. There are no express warranties made by Tetra Tech with respect to the Files, and any implied warranties are excluded.
3. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. Tetra Tech assumes no responsibility for the accuracy or completeness of the Files, and any use or reuse of such electronic data for any purpose shall be at the Recipient's sole risk.
4. Furthermore, in consideration of the use of the electronic data and the Files, Recipient agrees, to the fullest extent permitted by law, to defend (by legal counsel selected by Tetra Tech), indemnify, and hold Tetra Tech harmless from any and all claims, damages, losses, costs, and expenses, including attorney's fees and court costs (including the costs of any appeals) arising out of or resulting from Recipient's use, reuse, or use by others, regardless of whether such claims, damages, losses, costs, and expenses are caused in whole or in part by Tetra Tech. The duty to defend, indemnify, and hold Tetra Tech harmless shall apply regardless of whether such claims, damages, losses, costs, and expenses arise out of causes of action for tort, including negligence, contract, warranty, or strict liability.
5. The Recipient agrees to the following use restrictions of the electronic files:
  - a. The use of these files is limited only to the operation and maintenance of the above referenced project(s).
6. By signing below, the Recipient accepts full responsibility for the use of all electronic files received from and/or produced by Tetra Tech for the Project(s) listed above and any documents, instructions, or otherwise produced there from by the Recipient along with all Terms of Electronic Transfer indicated herein. A copy of this Agreement, executed by Tetra Tech, will be provided before or with the first electronic file transmittal.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Type or Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



## **SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Contractor's construction schedule.
  - 2. Reports.

#### **1.3 INFORMATIONAL SUBMITTALS**

- A. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period. Follow format outlined in attachment at end of this Section.
- B. Site Condition Reports: Submit at time of discovery of differing conditions.
- C. Special Reports: Submit at time of unusual event.

#### **1.4 COORDINATION**

- A. Secure time commitments for performing critical elements of the Work from entities involved.
- B. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

#### **1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL**

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.
- B. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

#### **1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)**

- A. Gantt-Chart Schedule: Submit a comprehensive, horizontal, Gantt-chart-type, Contractor's construction schedule per requirements of Division 01 Section "Multiple Contract Project Summary – Project Schedule".
  - 1. Format: Refer to accompanying "Format for Construction Schedule".



- B. Preparation: Indicate each significant construction activity separately, by Specification Section, coordinated with the schedule of values. Provide line item(s) for each Specification Section.
- C. Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.
- D. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties with a need-to-know schedule responsibility.
  - 1. When revisions are made, distribute updated schedules to the same parties.

#### 1.7 REPORTS

- A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- B. Special Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

Attachment: Format for Construction Schedule

END OF SECTION 01 32 00











## **SECTION 01 33 00 - SUBMITTAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for the administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
  - 1. Process designated submittals for the Project electronically through designated Electronic Submittal System. PDF files must be opened, viewed, modified and printed using Adobe Acrobat PDF software to view reviewer comments/stamps.

#### **1.3 DEFINITIONS**

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. As-Specified Products: Products to be incorporated into Project as specified by manufacturer name and product designation and including all options in Part 2 of technical specifications, intended to be installed as specified in Part 3 of technical specifications, and from a product category specifically identified as eligible to be considered as an "as-specified product" in the Action Submittals Article in Part 1 of technical specifications.
- C. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.
- E. Electronic Submittal System: A method to transmit certain electronic submittals between the Contractor, Construction Manager, Architect, and Owner, using Submittal Exchange website service.
  - 1. For consistency, the standard file format will be PDF. Convert paper originals and other file formats to PDF prior to submission.
  - 2. In the event of system malfunction, process submittals in accordance with the Architect's instructions, until the system malfunction has been corrected.



3. For this Project, process the following submittal types through the designated electronic submittal system:
  - a. Product Data.
  - b. Sustainable Design Submittals.
  - c. Shop Drawings.
  - d. Product Schedules.
  - e. Qualification Data.
  - f. Certificates (Welding, Installer, Manufacturer, Product, and Material, as applicable).
  - g. Test Reports (Material, Product, Preconstruction, Compatibility, and Field, as applicable).
  - h. Research Reports.
  - i. Warranty (sample).
  - j. Design Data, including calculations.
  - k. Coordination Drawings.
  - l. Delegated-Design Services Certifications.
4. For Samples, provide electronic submittal of Sample cover sheet, identifying location and actual delivery date of Samples. Deliver Samples to location (Architect's office, Project site, etc.) as directed by the Architect.

#### 1.4 COLOR SCHEDULE

- A. Color Schedule: Within 30 days after date of Notice of Award, submit a complete list of proposed manufacturers and complete product designations (i.e. model, grade, series, product line, etc.) for each item requiring color selection by Architect.

#### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Where indicated, submit all submittal items required for each Specification Section concurrently.
  3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.



- B. Processing Time: Allow sufficient time for submittal review, including time for resubmittals. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
- C. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Include a cover sheet on each submittal item for identification. Do not combine different submittals under same cover sheet; only one submittal is to be provided per email.
    - a. Cover Sheet Form: Use PDF version of sample form included in Project Manual. Complete each item on form, sign and date. Architect will furnish PDF version of sample form.
  2. Name submittal file as directed by Architect.
  3. Transmit each submittal via Electronic Submittal System.
  4. Transmit each submittal to Architect using the Submittal Exchange website [www.submittalexchange.com](http://www.submittalexchange.com).
- D. Resubmittals: Make resubmittals in same form and, for non-electronic submittals, in the same number of copies as initial submittal.
1. Note date and content of revision in label or title block and clearly indicate extent of revision.
  2. Resubmit submittals until they are marked with approval notation from Architect and Construction Manager.
  3. Refer to the General Conditions for provisions allowing Owner to obtain reimbursement from the Contractor for amounts paid to the Architect for evaluation of certain resubmittals.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.
- F. Use for Construction: Retain complete electronic copies of submittals on Project site during Construction. Also maintain one complete set of hard paper copies of all approved submittals on Project site during Construction. Use only final action submittals that are marked with approval notation from Architect and Construction Manager.
- G. Use of As-Specified Verification Form: The As-Specified Verification Form is intended to reduce certain action submittal paperwork for select products to be incorporated into the Work. If product to be incorporated into Project is specified by name and product designation in Part 2 of the Technical Specification Section and is from a product category specifically identified as eligible to be considered as an “as-specified product” in the Action Submittals Article in Part 1 of technical specifications, submit **“As-Specified Verification Form”** attached to this Specification Section.



## 1.6 ENVIRONMENTAL REQUIREMENTS

- A. All products provided for use in construction of this Project are to be free of asbestos. Refer to Division 01 Section "Closeout Procedures" for certification required to be provided. The Owner may provide random testing of installed products/ construction for asbestos content. Any Contractor-installed product found to contain asbestos shall be classified as defective work. Defective work shall be corrected by the Contractor as specified in the General Conditions.

## 1.7 SUBMITTAL PROCEDURES, GENERAL

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

## 1.8 ELECTRONIC SUBMITTAL REQUIREMENTS

- A. Use the designated electronic submittal system for submittals in this Article.
  - 1. Review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
  - 2. Transmit each submittal to Construction Manager and Architect using the Submittal Exchange website, [www.submittalexchange.com](http://www.submittalexchange.com).
  - 3. For Action Submittals, Architect / Engineer and Construction Manager review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
  - 4. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
  - 5. After award of contract, training will be provided by Submittal Exchange regarding use of website and PDF submittals. Contact Submittal Exchange at 1-800-714-0024.
  - 6. Internet Service and Equipment Requirements:
    - a. Email address and Internet access at Contractor's main office.
    - b. Adobe Acrobat ([www.adobe.com](http://www.adobe.com)), for applying electronic stamps and comments.
  - 7. Contractor shall bear the cost of the Submittal Exchange project subscription.
  - 8. Retain one electronic copy of all approved submittals, as part of the project records required at Project Closeout.
  - 9. Tetra Tech Architects and Engineers will be the Submittal Exchange Project Leader and Subscriber.



- B. **Product Data:** Collect information into a single submittal for each element of construction and type of product or equipment.
1. Mark submittal to show which products and options are applicable.
  2. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Statement of compliance with specified referenced standards.
    - c. Testing by recognized testing agency.
  3. For equipment, include the following in addition to the above, as applicable:
    - a. Printed performance curves.
    - b. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- C. **As-Specified Submittals:** Complete the **“As-Specified Verification Form”**.
1. Refer to the Action Submittals Article of technical specification sections. If the product to be incorporated into the Project is an “as-specified product” as defined in this Section, then submit **“As-Specified Verification Form”** in lieu of Product Data, otherwise submit full Product Data.
  2. Do not use **“As-Specified Verification Form”** unless specifically indicated in technical specification.
  3. The **“As-Specified Verification Form”** alone serves as the submittal for the specific product and no additional action submittal data is due at the time of the submittal. The full specific product technical data, however, is required to be included in the Operation and Maintenance Manual. Comply with requirements specified in Division 01 Section “Operation and Maintenance Data”.
- D. **Shop Drawings:** Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. **Preparation:** Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of dimensions established by field measurement.
    - e. Relationship and attachment to adjoining construction clearly indicated.
    - f. Seal and signature of professional engineer if specified.
- E. **Product Schedule:** As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:



1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- G. Certificates:
1. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS or ASME forms as applicable. Include names of firms and personnel certified.
  2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
  3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
  4. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
  5. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- H. Test Reports:
1. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
  2. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
  3. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
  4. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.



- 5. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- I. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- J. Warranty: Submit sample warranties as required in individual Specification Sections.
- K. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- L. Coordination Drawing Submittals: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- M. Delegated-Design Services Certification: Submit certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

#### 1.9 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

- A. Provide the Commissioning Authority with a copy of all submittals for equipment to be commissioned.
  - 1. The Commissioning Authority will review and approve Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Architect's review.
- B. Data for Commissioning:
  - 1. Refer to the technical Division Commissioning Section for listing of systems to be commissioned. Provide specific information needed about each piece of commissioned equipment or system in submittal as required to facilitate commissioning. Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any Owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians for pre-functional testing shall be submitted to the Commissioning Authority.



2. The Commissioning Authority may request further documentation necessary for the commissioning process. This data request may be made prior to submittals, during review, or subsequently as additional requirements become evident.
  3. Much of this information is contained in the regular Operation and Maintenance (O&M) manual submittals normally submitted in the Project. For commissioned projects, this information is typically required prior to the regular formal O&M manual submittals and will be duplicated therein, facilitating the later creation of the O&M manual.
- C. Contractor's responsibility for deviations in submittals from requirements of the Contract Documents is not relieved by the Commissioning Authority's review .

#### 1.10 NON-ELECTRONIC SUBMITTAL REQUIREMENTS

- A. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit two full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Deliver one set to Architect's office, deliver the other set to the construction trailer at the job site.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.



- a. Number of Samples: Submit two sets of Samples. Deliver one set to Architect's office, deliver the other set to the construction trailer at the job site.
  - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- B. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
  - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Submit subcontract list in the following format:
    - a. Number of Copies: Four paper copies of subcontractor list, unless otherwise indicated. Architect will return one copy.
- C. List of Key Personnel Names: No later than 15 days after date of Notice of Award, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site.
  - 1. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including emergency, office, and cellular telephone numbers and email addresses.
    - a. Number of Copies: Four paper copies of key personnel list, unless otherwise indicated.

#### 1.11 MISCELLANEOUS SUBMITTAL REQUIREMENTS

- A. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- B. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

#### 1.12 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.



### 1.13 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Identify any deviations from Contract Document requirements. Mark cover sheet with approval before submitting to Architect and Construction Manager.
  - 1. Sign and date statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
  - 2. If using Adobe Acrobat to electronically sign the Submittal Cover Sheet do not use the Certify Sign, Time Stamp feature as this will lock the document for further editing.

### 1.14 ARCHITECT'S AND CONSTRUCTION MANAGER'S ACTION

- A. General: Architect and Construction Manager will not review submittals that do not bear Contractor's approval and will return them without action.
- B. Action Submittals: Architect and Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect and Construction Manager will mark submittal appropriately to indicate action, as follows:
  - 1. Final Unrestricted Release: Where the submittal is marked "Approved," the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
  - 2. Final-but-Restricted Release: Where the submittal is marked "Approved As Noted," the Work covered by the submittal may proceed provided it complies both with Architect's notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
  - 3. Rejected: Where the submittal is marked "Rejected," do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents.
  - 4. Incomplete - Resubmit: Where the submittal is marked "Incomplete, Submit Additional Information," do not proceed with the Work covered by the submittal. Prepare additional information requested, or required by the Contract Documents, that indicates compliance with requirements, and resubmit.
- C. Informational Submittals: Architect and Construction Manager will review each submittal and will not return it, or will return it if it does not comply with requirements.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Limit information submitted to specific products indicated. Do not submit extraneous matter. Submittals containing excessive extraneous matter will be returned for resubmittal without review.



- F. Submittals not required by the Contract Documents may be returned by the Architect without action.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

Attachments:      Tt Cover Sheet  
                         As-Specified Verification Form  
                         Tt Cover Sheet for Closeout Submittals (Sections 01 78 23 and 01 78 39)  
                         Quality Environmental Solutions & Technologies, Inc. (QuES&T) Cover Sheet to be  
                         used ONLY for Submittals for Section 02 82 00  
                         Delegated Design Submittal Form. Refer to Sections: 05 21 00; 08 41 13; 08 80 00;  
                         09 51 13; 10 82 13; 11 68 33.33

END OF SECTION 01 33 00



CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_

SUBMITTAL DATE \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Check following as applicable:

ARCHITECT: Tetra Tech Architects & Engineers

☐ First Submission

**PROJECT IDENTIFICATION**

☐ Re-Submission No. \_\_\_\_

Architect's  
Project No.: 17597-22001

Proj. Name: Reconstruction Wallkill Central School District

Location: Wallkill, New York

**PRODUCT IDENTIFICATION**

Specification Section No. \_\_\_\_\_

Name of Product: \_\_\_\_\_

Name of Manufacturer: \_\_\_\_\_

**SUBCONTRACTOR**

**SUPPLIER**

**RELATIONSHIP TO STRUCTURE**

Building  
Name \_\_\_\_\_

\_\_\_\_\_  
(Room #) (Room Name)

Contract Drawing No.: \_\_\_\_\_

RESERVED FOR USE BY TETRA TECH

**ACTION SUBMITTAL:**

☐ Approved

☐ Approved As Noted

☐ Rejected

☐ Incomplete, Submit Additional Information

**INFORMATIONAL SUBMITTAL:**

☐ No Action Taken

☐ Returned for Resubmittal

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures.

**DEVIATION FROM CONTRACT DOCUMENTS:** \_\_\_\_\_

**CONTRACTOR COMMENTS:** \_\_\_\_\_

**ARCHITECT'S COMMENTS:** \_\_\_\_\_

**CONTRACTOR'S STAMP**

**CONTRACTOR'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED AND APPROVED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL CONDITIONS. PRODUCTS/MATERIALS ARE FREE OF ASBESTOS AS REQUIRED BY THE CONTRACT DOCUMENTS.

BY \_\_\_\_\_

**CONSTRUCTION MANAGER'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED AND APPROVED BY THE CONSTRUCTION MANAGER IN ACCORDANCE WITH THE GENERAL CONDITIONS.

BY \_\_\_\_\_

CM Submittal No. \_\_\_\_\_





## **As-Specified Verification Form**

Project Number: 17597-22001

Project Title: Reconstruction to Wallkill Central School District

Technical  
Specification Section: \_\_\_\_\_  
(Include Section Number and Title as shown in Project Manual)

Specified Product: \_\_\_\_\_  
(Include manufacturer's name and product designation)

The undersigned, hereinafter called the Contractor, hereby warrants that the Specified Product listed above will be incorporated into the Project in accordance with requirements specified in the Technical Specification Section identified above without modification or alteration.

By acceptance of this form, Tetra Tech Architects & Engineers (hereinafter called Tetra Tech), agrees that limited submittals identified in the Technical Specification Section identified above are not required, unless otherwise stated in the Submittals article in the Technical Specification Section.

The Contractor is advised that use of this As-Specified Verification Form does not relieve the Contractor from providing remaining submittal documentation required in Technical Specification sections and all information required in Division 1 Closeout section of the Project Manual or from complying with requirements of the General Conditions.

Products/Materials are free of asbestos as required by the Contract Documents.

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(Title of Signatory)

\_\_\_\_\_  
(Date)

### **RESERVED FOR USE BY TETRA TECH**

#### **ACTION SUBMITTAL:**

- ☐ Approved / Approved As Noted  
☐ Rejected

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures.

**ARCHITECT'S COMMENTS:** \_\_\_\_\_



CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_

SUBMITTAL DATE \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Check following as applicable:

☐ First Submission \_\_\_\_

☐ Re-Submission No. \_\_\_\_

ARCHITECT: Tetra Tech Architects & Engineers

**PROJECT IDENTIFICATION**

Architect's  
Project No.: 17597-22001

Proj. Name: Reconstruction Wallkill Central School District

Location: Wallkill, New York

**PRODUCT IDENTIFICATION**

Specification Section No. 01 78 23 OR 01 78 39 (circle correct one)

Name of Product: \_\_\_\_\_

Name of Manufacturer: \_\_\_\_\_

**SUBCONTRACTOR:** \_\_\_\_\_

**SUPPLIER:** \_\_\_\_\_

RESERVED FOR USE BY TETRA TECH

**INFORMATIONAL SUBMITTAL:**

☐ No Action Taken

☐ Returned for Resubmittal

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

Reviewed only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures.

**DEVIATION FROM CONTRACT DOCUMENTS:** \_\_\_\_\_

**CONTRACTOR COMMENTS:** \_\_\_\_\_

**CONSTRUCTION MANAGER'S COMMENTS:** \_\_\_\_\_

**ARCHITECT'S COMMENTS:** \_\_\_\_\_

**CONTRACTOR'S STAMP**

**CONTRACTOR'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED AND APPROVED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL CONDITIONS. PRODUCTS/MATERIALS ARE FREE OF ASBESTOS AS REQUIRED BY THE CONTRACT DOCUMENTS.

BY \_\_\_\_\_

**CONSTRUCTION MANAGER'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED BY THE CONSTRUCTION MANAGER IN ACCORDANCE WITH THE GENERAL CONDITIONS. AND IN ACCORDANCE WITH THE CONSTRUCTION MANAGER'S CONTRACTUAL OBLIGATIONS WITH THE OWNER.

Approved \_\_\_\_\_ Rejected \_\_\_\_\_

BY \_\_\_\_\_

CM Submittal No. \_\_\_\_\_



CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_

SUBMITTAL DATE \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Check following as applicable:

CONSULTANT: \_\_\_\_\_

☐ First Submission \_\_\_\_

☐ Re-Submission No. \_\_\_\_

**PROJECT IDENTIFICATION**

Architect's  
Project No.: 17597-22001

Proj. Name: Reconstruction Wallkill Central School District

Location: Wallkill, New York

**PRODUCT IDENTIFICATION**

Specification Section No. \_\_\_\_\_

Name of Product: \_\_\_\_\_

Name of Manufacturer: \_\_\_\_\_

**SUBCONTRACTOR:**

**SUPPLIER:**

**RELATIONSHIP TO STRUCTURE:**

Building Name: \_\_\_\_\_

(Room #)

(Room Name)

Contract Drawing No.: \_\_\_\_\_

**DEVIATION FROM CONTRACT DOCUMENTS:**

**CONTRACTOR COMMENTS:**

**OWNER'S CONSULTANT COMMENTS:**

**CONTRACTOR'S STAMP**

**CONTRACTOR'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED AND APPROVED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL CONDITIONS. PRODUCTS/MATERIALS ARE FREE OF ASBESTOS AS REQUIRED BY THE CONTRACT DOCUMENTS.

BY \_\_\_\_\_

**CONSTRUCTION MANAGER'S CERTIFICATION**

I CERTIFY THAT THIS SUBMITTAL HAS BEEN REVIEWED AND APPROVED BY THE CONSTRUCTION MANAGER IN ACCORDANCE WITH THE GENERAL CONDITIONS.

BY \_\_\_\_\_

CM Submittal No. \_\_\_\_\_

Quality Environmental Solutions & Technologies, Inc.  
OWNER'S DIRECT CONSULTANT

**ACTION SUBMITTAL:**

- ☐ Approved
- ☐ Approved As Noted
- ☐ Rejected
- ☐ Incomplete, Submit Additional Information

**INFORMATIONAL SUBMITTAL:**

- ☐ No Action Taken
- ☐ Returned for Resubmittal

Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_



## **DELEGATED DESIGN SUBMITTAL**

**CONTRACTOR:** \_\_\_\_\_

**SUBMITTAL DATE** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**DESIGN PROFESSIONAL:** \_\_\_\_\_

Check following as applicable:

**ARCHITECT:** Tetra Tech Architects & Engineers

☐ First Submission

**PROJECT IDENTIFICATION**

☐ Re-Submission No. \_\_\_\_

Architect's  
Project No.: 17597-22001

Proj. Name: Reconstruction Wallkill Central School District

Location: Wallkill, New York

**PRODUCT IDENTIFICATION**

Specification Section No. \_\_\_\_\_

Name of Product: \_\_\_\_\_

Name of Manufacturer: \_\_\_\_\_

**SUBCONTRACTOR**

**SUPPLIER**

**RELATIONSHIP TO STRUCTURE**

Building  
Name \_\_\_\_\_

(Room #) \_\_\_\_\_ (Room Name) \_\_\_\_\_

Contract Drawing No.: \_\_\_\_\_

**DEVIATION FROM CONTRACT DOCUMENTS:**

**DESIGN PROFESSIONAL'S COMMENTS:** \_\_\_\_\_

**CONTRACTOR COMMENTS:** \_\_\_\_\_

**ARCHITECT'S COMMENTS:** \_\_\_\_\_

**CONSTRUCTION MANAGER'S CERTIFICATION**

I certify that this submittal has been reviewed and approved by the Construction Manager in accordance with the General Conditions.

**BY** \_\_\_\_\_

**CM Submittal No.** \_\_\_\_\_

**CONTRACTOR'S STAMP**

**DESIGN PROFESSIONAL'S CERTIFICATION**

I certify that I am a design professional currently licensed in New York State and confirm my responsibility for work included in this submittal in accordance with the General Conditions. Further, I certify that to the best of my knowledge, information and belief, the plans and specifications are in accordance with applicable requirements of the New York State Uniform Fire Prevention and Building Code, the State Energy Conservation Construction Code and construction standards of the Education Department.

**BY** \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION**

I certify that this submittal has been reviewed and approved by the Contractor in accordance with the General Conditions. Products/Materials Are free of asbestos as required by the Contract Documents.

**BY** \_\_\_\_\_

RESERVED FOR USE BY TETRA TECH

**ACTION SUBMITTAL:**

☐ Approved

☐ Approved As Noted

☐ Rejected

☐ Incomplete, Submit Additional Information

**INFORMATIONAL SUBMITTAL:**

☐ No Action Taken

☐ Returned for Resubmittal

**Reviewed By:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Reviewed only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. Review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences or procedures.



**SECTION 01 35 26 – GOVERNMENTAL SAFETY REQUIREMENTS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Safety requirements included in 8 NYCRR 155.5 Uniform Safety Standards for School Construction and Maintenance Projects.

**1.3 PERFORMANCE REQUIREMENTS**

- A. General Performance: Provide all measures, including (but not limited to) materials, equipment, and procedures, required to comply with following requirements of 8 NYCRR 155.5 Uniform Safety Standards for School Construction and Maintenance Projects.
- B. Certificate of Occupancy:
  - 1. 8 NYCRR 155.5 (a): “The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.”
- C. General Safety and Security Standards for Construction Projects:
  - 1. 8 NYCRR 155.5 (e)(1): “All construction materials shall be stored in a safe and secure manner.”
  - 2. 8 NYCRR 155.5 (e)(2): “Fences around construction supplies or debris shall be maintained.”
  - 3. 8 NYCRR 155.5 (e)(3): “Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.”
  - 4. 8 NYCRR 155.5 (e)(4): “During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.”
  - 5. 8 NYCRR 155.5 (e)(5): “Workers shall be required to wear photo identification badges at all times for identification and security purposes while working at occupied sites.”



D. Separation of Construction Areas from Occupied Spaces:

1. 8 NYCRR 155.5 (f): “Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.”
2. 8 NYCRR 155.5 (f)(1): “A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.”

E. Cleaning Occupied Areas:

1. 8 NYCRR 155.5 (f)(2): “Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.”
2. 8 NYCRR 155.5 (f)(3): “All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session.”

F. Exiting and Ventilation:

1. 8 NYCRR 155.5(g): Maintain exiting and ventilation during school construction projects.
2. 8 NYCRR 155.5(g)(1): “Required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.”
3. 8 NYCRR 155.5(g)(2): “Required ventilation to occupied spaces affected by construction will be maintained during the project.”

G. Noise Control:

1. 8 NYCRR 155.5 (i): “Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken.”

H. Control of Fumes, Gases and Contaminants:

1. 8 NYCRR 155.5 (j): The contractor shall be responsible for the control of chemical fumes, gases, and other contaminants produced by welding, gasoline or diesel engines, roofing, paving, painting, and other fumes to ensure they do not enter occupied portions of the building or air intakes.



I. “Off-Gassing” of Volatile Organic Compounds:

1. 8 NYCRR 155.5 (j)(1): The contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paint, furniture, carpeting, wall coverings, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturer’s recommendations before a space can be occupied.

J. Asbestos Isolation:

1. 8 NYCRR 155.5 (k): “Large and small asbestos abatement projects as defined by 12 NYCRR 56 shall not be performed while the building is occupied.” Note, it is NYSED’s interpretation that the term "building", as referenced in this section of 8 NYCRR 155.5, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier.
2. Exterior work such as roofing, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required, and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.

K. Lead and Asbestos Testing:

1. 8 NYCRR 155.5 (c)(1): “All school areas to be disturbed during renovation or demolition shall be tested for lead and asbestos.”
  - a. Asbestos and Asbestos-Containing Materials:
    - 1) Be advised that asbestos and asbestos-containing materials are required to be abated as part of this Project. Refer to Division 02 Section “Asbestos Abatement”.
      - a) The extent of asbestos to be abated as part of the Project is indicated on Drawings included in the Contract Documents.
      - b) Prior to beginning Work, review Owner’s “Asbestos Management Plan” to ensure asbestos or asbestos-containing materials identified in that document are not disturbed.
    - 2) Be advised that disturbance of asbestos and asbestos-containing materials is not anticipated as part of this Project.
      - a) Prior to beginning Work, review Owner’s “Asbestos Management Plan” to ensure asbestos or asbestos-containing materials identified in that document are not disturbed.



- 3) Be advised that if materials suspected to be asbestos, or to contain asbestos, that are not included in the Project and not identified in the Contract Documents are encountered during construction, immediately notify Owner and take precautions as required to avoid disturbing materials until directed by Owner.
- 4) Transmission Electron Microscopy (TEM): All asbestos abatement work that requires clearance air sampling in accordance with New York State Industrial Code Rule 56 shall have clearance air samples collected and analyzed using Transmission Electron Microscopy as per the Asbestos Hazard Emergency Response Act (40 CFR 763). Refer to Division 02 Section "Asbestos Abatement".

b. Lead and Lead-Containing Materials:

- 1) Be advised that a lead inspection has been performed as required by New York State Education Department and a copy of the lead inspection report is available at the Owner's offices.

L. Code Rule 56:

1. 8 NYCRR 155.5(k): "All asbestos abatement projects shall comply with all applicable Federal and State laws including but not limited to the New York State Department of Labor industrial code rule 56 (12 NYCRR 56), and the Federal Asbestos Hazard Emergency Response Act (AHERA), 40 CFR part 763 (Code of Federal Regulations, 1998 Edition, Superintendent of Public Documents, U.S. Government Printing Office, Washington, DC 20402; 1998; available at the Office of Facilities Planning, Education Building Annex, Room 360, State Education Department, Albany, NY 12234."

M. Lead:

1. 8 NYCRR 155.5 (l): Surfaces that will be disturbed by reconstruction must have a determination made as to the presence of lead. Projects which disturb surfaces that contain lead shall have in the specifications a plan prepared by a certified Lead Risk Assessor or Supervisor which details provisions for occupant protection, worksite preparation, work methods, cleaning and clearance testing which are in general accordance with the HUD Guidelines.
  - a. Be advised that lead and lead-containing materials are required to be disturbed or removed as part of this Project. Refer to Division 02 Section "Lead-Safe Work Practices".
    - 1) The extent of lead to be disturbed or removed as part of the project is indicated on Drawings included in the Contract Documents.
  - b. Be advised that disturbance of lead and lead-containing materials is not anticipated as part of this Project.



- c. Contractor is responsible for complying with requirements of all applicable federal, state and local regulations, including (but not limited to) OSHA Lead in Construction Standard 29 CFR 1926.62, when construction activities involve disturbance of materials containing 1.0 mg/sq cm or 0.5 percent of lead or less, including (but not limited to) lead-based paint, ceramic tile, and similar materials.
- d. If materials suspected to contain lead above 1.0 mg/sq cm or above 0.5 percent that are not included in Project or identified in Contract Documents are encountered during construction, immediately notify Owner and take applicable precautions to avoid disturbing materials until directed by Owner.

N. Disposal of Lead Abatement Waste:

- 1. Test all debris from lead abatement activities to determine whether it is hazardous or non-hazardous waste.
- 2. Transport and dispose of debris determined to be hazardous waste in accordance with applicable regulations.
- 3. Package, label, and mark all hazardous waste materials in accordance with applicable requirements of 49 CFR 173, 178 and 179.
- 4. Maintain hazardous waste manifest from date of transport until date of disposal, destruction or recycling.
- 5. Return fully executed hazardous waste manifests to Owner within 60 days after date waste accepted by initial transporter.
- 6. Dispose of material determined to be Construction and Demolition Debris in accordance with 6 NYCRR 360 and 364. Provide trip tickets or other documentation clearly identifying generating site, Owner, transporter, disposal site and amount of material removed from site, transported to and disposed of at disposal site.
- 7. Refer to Division 02 Section "Lead-Safe Work Practices" for additional requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 35 26



## **SECTION 01 40 00 - QUALITY REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

#### **1.3 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- D. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.



- E. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of **five** previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.5 SUBMITTALS

- A. Informational Submittals:
  - 1. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
  - 2. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
    - a. Specification Section number and title.
    - b. Entity responsible for performing tests and inspections.
    - c. Description of test and inspection.
    - d. Identification of applicable standards.
    - e. Identification of test and inspection methods.
    - f. Number of tests and inspections required.
    - g. Time schedule or time span for tests and inspections.

#### 1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.



6. Description of the Work and test and inspection method.
  7. Identification of product and Specification Section.
  8. Complete test or inspection data.
  9. Test and inspection results and an interpretation of test results.
  10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  12. Name and signature of laboratory inspector.
  13. Recommendations on retesting and reinspecting.
- B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.



- G. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect or Construction Manager.
  - 2. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain Architect's and Construction Manager's approval of mockups before starting work, fabrication, or construction.
  - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - 6. Demolish and remove mockups when directed unless otherwise indicated.

## 1.8 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
  - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.



2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  6. Security and protection for samples and for testing and inspecting equipment at Project site.



- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
  - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
  - 1. Distribution: Distribute schedule to Owner, Architect, **Construction Manager**, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## 1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections attached to this Section, and as follows:
  - 1. Notifying Architect, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  - 2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
  - 3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  - 4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  - 5. Retesting and reinspecting corrected work.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date test or inspection results were transmitted to Architect.
  - 4. Identification of testing agency or special inspector conducting test or inspection.



- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Construction Manager's, reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

Attachment: Statement of Special Inspections

END OF SECTION 01 40 00





**TETRA TECH**  
ARCHITECTS & ENGINEERS

## STATEMENT OF SPECIAL INSPECTIONS

Project: *Wallkill CSD – 2022 Capital Project – Phase 1*

Location: *Wallkill, NY*

Owner: *Wallkill Central School District*

This *Statement of Special Inspections* is submitted as a condition for permit issuance in accordance with the Special Inspection and Structural Testing requirements of the Building Code of New York State. It includes a schedule of Special Inspection services applicable to this project. *Refer to individual technical specification sections for additional testing requirements.*

This document includes the following parts:

*Qualifications of Inspectors and Testing Technicians*

*Schedule of Special Inspection Services*



## **Qualifications of Inspectors and Testing Technicians**

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The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

### **Key for Minimum Qualifications of Inspection Agents:**

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Qualifications* on the Schedule.

PE	Structural Engineer – a licensed PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

#### **American Concrete Institute (ACI) Certification**

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

#### **American Welding Society (AWS) Certification**

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

#### **American Society of Non-Destructive Testing (ASNT) Certification**

ASNT	Non-Destructive Testing Technician – Level II or III.
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#### **International Code Council (ICC) Certification**

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

#### **National Institute for Certification in Engineering Technologies (NICET)**

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

#### **Association of the Wall and Ceilings Industries International (AWCI)**

AWCI 12-B	Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide.
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## Schedule of Special Inspection Services

INSPECTION AND TESTING  <i>("Continuous" &amp; "Periodic" defined by the Code; refer to applicable Technical Specification Section for specific frequency requirements)</i>	REQUIRED <i>(Required if checked; Not Applicable if not checked)</i>	TECHNICAL SPECIFICATION SECTION <i>(Refer to for additional information)</i>	CONTINUOUS	PERIODIC
<b>Cast-in-Place Concrete (1705.3)</b>				
1. Inspection of reinforcing steel and verify placement	<input checked="" type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Inspection of reinforcing steel welding:				
a. Verification of ASTM A706 material	<input type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspect single-pass fillet welds, maximum 5/16"	<input type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Inspect all other welds	<input type="checkbox"/>	03 30 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Inspection of anchors to be installed in concrete prior to and during placement	<input checked="" type="checkbox"/>	03 30 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Inspect anchors post-installed in hardened concrete				
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	<input type="checkbox"/>	03 30 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Mechanical anchors and adhesive anchors not defined in 4a.	<input checked="" type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Verify use of required design mix	<input checked="" type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Sampling fresh concrete for fabricating specimens for strength testing, perform slump and air content tests, and measure temperature of concrete	<input checked="" type="checkbox"/>	03 30 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Inspection of concrete and shotcrete placement for proper application techniques	<input checked="" type="checkbox"/>	03 30 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Verify maintenance of specified curing temperature and techniques	<input checked="" type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete, and prior to removal of shores and forms from beams and structural slabs	<input type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Inspection of formwork for shape, location and dimensions of the concrete member being formed	<input checked="" type="checkbox"/>	03 30 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Inspection of post-tensioning operations	<input type="checkbox"/>	03 38 16	<input checked="" type="checkbox"/>	<input type="checkbox"/>



<b>Precast Concrete (1705.3)</b>				
1. Inspection of reinforcing steel	<input type="checkbox"/>	03 41 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Verify use of required design mix	<input type="checkbox"/>	03 41 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Inspection of prestressed operations				
a. Application of prestressing forces	<input type="checkbox"/>	03 41 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system	<input type="checkbox"/>	03 41 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Sampling fresh concrete; slump, air content, temperature, strength test specimens	<input type="checkbox"/>	03 41 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Inspection of formwork for shape, location and dimensions of the concrete member being formed	<input type="checkbox"/>	03 41 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Inspection of concrete placement for proper application techniques	<input type="checkbox"/>	03 41 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Inspection for maintenance of specified curing temperature and techniques	<input type="checkbox"/>	03 41 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Erection of precast concrete members	<input type="checkbox"/>	03 41 00, 03 48 10	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Fabricated Items (1704.2.5 and 1705.10)</b>				
1. Inspection of structural, load-bearing or lateral load-resisting members or assemblies as noted on Contract Documents that are fabricated in a fabricator's shop	<input type="checkbox"/>	?? ?? ??	<input type="checkbox"/>	<input type="checkbox"/>
Exceptions:				
a. The fabricator has been approved to perform work without special inspections per NYSBC 1704.2.5.1.				
b. The members or assemblies are to be fabricated on site. Then refer to the respective material categories for inspections.				



<b>Masonry (1705.4)</b>				
<b>Level 1</b>	<input type="checkbox"/>	04 20 00		
1. Prior to construction, verify certificates of compliance used in masonry construction	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
<b>Level 2 Level 3</b>	<input checked="" type="checkbox"/> Level 2 <input type="checkbox"/> Level 3	04 20 00		
1. Prior to construction, verify compliance with the approved submittals.	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
2. Prior to construction, verify $f'm$ , except where specifically exempted by the Code	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
3. During construction, verify Slump flow and Visual Stability Index (VSI) when self-consolidating grout is delivered to the project site	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
4. During construction, verify $f'm$ for every 5,000 sqft	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
5. During construction, verify proportions of materials in premixed or preblended mortar, and grout other than self-consolidating grout, as delivered to the project site.	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input type="checkbox"/>
6. At start of masonry construction, verify to ensure compliance:				
a. Proportions of site prepared mortar.	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Grade, type and size of reinforcement, connectors, and anchor bolts.	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Sample panel construction.	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Prior to grouting, verify that the following are in compliance:				
a. Grout space	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Placement of reinforcement, connectors, and anchor bolts	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Proportions of site-prepared grout	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. During construction, verify compliance of the following:				
a. Materials and procedures with the approved submittals.	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Placement of masonry units and mortar joint construction.	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Size and location of structural members.	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Type, size and location of anchors including anchorage of masonry to structural members, frames or other construction	<input type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Welding of reinforcing bars	<input type="checkbox"/>	04 20 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Preparation, construction and protection of masonry during cold or hot weather	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Placement of grout.	<input checked="" type="checkbox"/>	04 20 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Observe preparation of grout specimens, mortar specimens and/or prisms	<input checked="" type="checkbox"/>	04 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>



<b>Structural Steel (1705.2.1)</b>				
1. Minimum inspections prior to welding per AISC 360 (including but not limited to material verification, welder qualification and fit-up of joints).	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Minimum inspections during welding per AISC 360	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
a. Placement and installation of steel headed stud anchors	<input type="checkbox"/>	05 12 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Verification of ASTM A 706 material	<input type="checkbox"/>	05 12 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Testing of resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement.	<input type="checkbox"/>	05 12 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Minimum inspections after welding per AISC 360 (including but not limited to size, length and location of welds; welds meet visual acceptance criteria; and repair activities)	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Inspection of welding via UT for CJP groove welds subject to transversely applied tension loading in butt, T-, and Corner joints				
a. Risk Category III or IV structures	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Risk Category II structures	<input type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Minimum inspections prior to high-strength bolting (except for snug-tight joints) per AISC 360 (including but not limited to material verification of high-strength bolts, nuts, and washers; and bolting procedures)	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Minimum inspections during high-strength bolting (except for snug-tight joints) per AISC 360 (included but not limited to assemblies and positioning)	<input checked="" type="checkbox"/>	05 50 00		
a. For pretension/slip-critical connections using turn-of-nut with match marking method, direct-tension-indicator method, or twist-off-type tension control bolt method.	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. For pretension/slip-critical connections using calibrated wrench method or turn-of-nut method without matchmarking	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Minimum inspections after high-strength bolting per AISC 360	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Inspection of fabricated and/or erected steel to verify compliance with the construction drawings.	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a. Details such as bracing and stiffeners	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Member locations	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Joint details	<input checked="" type="checkbox"/>	05 50 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Inspection during placement of anchor rods and other embedded items supporting structural steel for compliance with construction drawings.	<input checked="" type="checkbox"/>	05 50 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Material verification of structural steel: Identification markings to conform to ASTM standards specified in the approved construction documents	<input type="checkbox"/>	05 12 00	<input type="checkbox"/>	<input type="checkbox"/>



<b>Open-Web Steel Joists and Joist Girders (1705.2.3)</b>				
1. Installation of open-web steel joists and joist girders				
a. End connections – welded or bolted per SJI	<input checked="" type="checkbox"/>	05 21 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Bridging – horizontal or diagonal				
1. Standard bridging per SJI	<input checked="" type="checkbox"/>	05 21 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Bridging that differs from SJI specification	<input checked="" type="checkbox"/>	05 21 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Cold-Formed Steel Deck (1705.2.2)</b>				
1. Inspection or Execution Tasks Prior to Deck Placement per SDI QA/QC (including but not limited to compliance of materials with construction documents)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Inspection or Execution Tasks After to Deck Placement per SDI QA/QC (including but not limited to compliance of installation with construction documents)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Inspection or Execution Tasks Prior to Welding per SDI QA/QC (including but not limited to verification of procedures and certifications)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Inspection or Execution Tasks During Welding per SDI QA/QC	<input type="checkbox"/>	05 31 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Inspection or Execution Tasks After Welding per SDI QA/QC (including but not limited to size, length and location of welds; welds meet visual acceptance criteria; and repair activities)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Inspection or Execution Tasks Prior to Mechanical Fastening per SDI QA/QC (including but not limited to material verification)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Inspection or Execution Tasks During Mechanical Fastening per SDI QA/QC (including but not limited to verification of positioning and installation)	<input type="checkbox"/>	05 31 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Inspection or Execution Tasks After Mechanical Fastening per SDI QA/QC (including but not limited to verification of spacing, type and location; repair activities)	<input type="checkbox"/>	05 31 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Cold-Formed Steel Trusses (1705.2.4)</b>				
1. For trusses spanning 60 feet or greater:				
a. Verify the temporary installation restraint/bracing is installed per the approved truss submittal package.	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Verify the permanent individual truss member restraint/bracing is installed per the approved truss submittal package.	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>



<b>Wood Construction (170505)</b>				
1. For Metal-plate connected wood trusses spanning 60 feet or greater:				
a. Verify the temporary installation restraint/bracing is installed per the approved truss submittal package.	<input type="checkbox"/>	06 10 00, 06 16 00, 06 17 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Verify the permanent individual truss member restraint/bracing is installed per the approved truss submittal package.	<input type="checkbox"/>	06 10 00, 06 16 00, 06 17 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Inspect High-load diaphragms for grade and thickness of sheathing material; nominal size of framing members; fastener diameter and length; fastener layout and spacing	<input type="checkbox"/>	06 10 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Exterior Insulation and Finish Systems (EIFS) (1705.16)</b>				
Not required if water-resistive barrier is installed with a means of draining moisture to the exterior. Also not required for EIFS applications over masonry or concrete walls.	<input type="checkbox"/>	07 24 13	<input type="checkbox"/>	<input type="checkbox"/>
1. Inspection of water-resistive batter coating when installed over a sheathing substrate.				

<b>Sprayed Fire-resistant Materials (1705.14)</b>				
1. Verify surface preparation in accordance with manufacturer's written instructions.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
2. Verify temperature and area ventilation before and after application in accordance with manufacturer's written instructions.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
3. Verify thickness of sprayed fire-resistant materials				
a. Minimum of 4 measurements per 1,000 sq ft of floor, roof and wall assembly areas, or part thereof at each story.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
b. Minimum of 25% of structural members at each story.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
4. Verify density of sprayed fire-resistant materials.				
a. Minimum of one sample per 2,500 sq ft of floor, roof and wall assembly areas, or part thereof at each story.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
b. Minimum of one sample from each type of structural framing member per 2,500 sq ft of floor area or part thereof at each story.				
5. Verify cohesive/adhesive bond strength of sprayed fire-resistant materials.				
a. Minimum of one sample per 2,500 sq ft of floor, roof and wall assembly areas or part thereof at each story.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
b. Minimum of one sample from each type of structural framing member per 2,500 sq ft of floor area or part thereof at each story.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>
c. Bond tests to qualify a primer, paint, or encapsulant when acceptable bond strength performance between those coatings and the fire-resistant material has not been determined.	<input type="checkbox"/>	07 81 00	<input type="checkbox"/>	<input type="checkbox"/>



<b>Mastic and Intumescent Fire-resistant Coatings (1705.15)</b>				
1. Verify surface preparation, application, and thickness when applied to structural elements and decks in accordance with AWCI 12-B	<input type="checkbox"/>	07 81 23	<input type="checkbox"/>	<input type="checkbox"/>

<b>Fire-Resistant Penetrations and Joints (1705.17)</b>				
1. Inspection of through-penetrations and membrane penetration firestops in buildings in Risk Category III or IV per ASTM E2174	<input type="checkbox"/>	07 84 13	<input type="checkbox"/>	<input type="checkbox"/>
2. Inspections of fire-resistant joint systems and perimeter fire barrier systems in buildings in Risk Category III or IV per ASTM E2393	<input type="checkbox"/>	07 84 43, 07 95 13.13	<input type="checkbox"/>	<input type="checkbox"/>

<b>Soils (1705.6)</b>				
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity	<input checked="" type="checkbox"/>	31 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Verify excavations are extended to proper depth and have reached proper material	<input checked="" type="checkbox"/>	31 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Perform classification and testing of compacted fill materials	<input checked="" type="checkbox"/>	31 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill	<input checked="" type="checkbox"/>	31 20 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly	<input checked="" type="checkbox"/>	31 20 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Driven Deep Foundations (1705.7)</b>				
1. Verify element materials, sizes and lengths comply with the requirements	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Determine capacities of test elements and conduct additional load tests, as required	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Inspect driving operations and maintain complete and accurate records for each element	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. For steel elements, perform additional special inspections in accordance with 1705.2	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input type="checkbox"/>	<input type="checkbox"/>
6. For concrete elements and concrete-filled elements, perform additional special inspections in accordance with Section 1705.3	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input type="checkbox"/>	<input type="checkbox"/>
7. For specialty elements, perform additional inspections	<input type="checkbox"/>	31 62 13, 31 62 16, 31 62 19, 31 22 23	<input type="checkbox"/>	<input type="checkbox"/>



<b>Cast-In-Place Deep Foundations (1705.8)</b>				
1. Inspect drilling operations and maintain complete and accurate records for each element	<input checked="" type="checkbox"/>	03 30 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable), and adequate end bearing strata capacity. Record concrete or grout volumes.	<input checked="" type="checkbox"/>	03 30 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3	<input checked="" type="checkbox"/>	03 30 00	<input type="checkbox"/>	<input type="checkbox"/>

<b>Helical Pile Foundations (1705.9)</b>				
1. Inspect installation operations and maintain complete and accurate records for each pier	<input type="checkbox"/>	??	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Verify and record installation equipment used, pile dimensions, tip elevations, final depth, final installation torque other data as required	<input type="checkbox"/>	??	<input checked="" type="checkbox"/>	<input type="checkbox"/>



<b>Wind Resistance Inspections (1705.11)</b>				
1. Structural wood – of elements in main windforce-resisting system				
a. Inspection of gluing operations.	<input type="checkbox"/>	06 10 00, 06 16 00, 06 17 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Inspection of nailing, bolting, anchoring and other fastening	<input type="checkbox"/>	06 10 00, 06 16 00, 06 17 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Cold-formed steel light-frame construction – of elements in main windforce-resisting systems.				
a. Inspection of welding operations	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspection of screw attachment, bolting, anchoring and other fastening	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Wind-resisting components:				
a. Inspection of roof covering, roof deck and roof framing connections	<input type="checkbox"/>	05 12 00, 05 21 00, 05 31 00, 07 53 23	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspection of exterior wall covering and wall connections to roof and floor diaphragms and framing	<input type="checkbox"/>	04 20 00, 07 24 13, 08 41 13, 08 44 13	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>Seismic Resistance Inspections (1705.12)</b>				
1. Structural steel:				
<a href="#">SDC B, C, D, E, or F – refer to 1705.12.1.1 for exceptions</a>	<input type="checkbox"/>	05 12 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
a. Seismic force-resisting systems – inspection in accordance with AISC 341				
<a href="#">SDC B (R&gt;3), C (R&gt;3), D, E, or F</a>	<input type="checkbox"/>	05 12 00	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Structural steel elements - inspection in accordance with AISC 341				
<a href="#">SDC C, D, E, or F, refer to 1705.12.2 for exceptions</a>				
2. Structural wood, seismic-force-resisting systems:				
a. Inspection of field gluing operations.	<input type="checkbox"/>	06 10 00, 06 17 00, 06 17 53	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Inspection of nailing, bolting, anchoring and other fastening	<input type="checkbox"/>	06 10 00, 06 17 00, 06 17 53	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<a href="#">SDC C, D, E, or F, refer to 1705.12.3 for exceptions</a>				
3. Cold-formed steel framing - of elements in seismic-force-resisting systems				
a. Inspection of welding operations of seismic-force-resisting systems	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspection of screw attachment, bolting, anchoring and other fastening	<input type="checkbox"/>	05 40 00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<a href="#">SDC C, D, E or F; coord with 13.2.2 of ASCE 7</a>	<input type="checkbox"/>	??	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Designated seismic systems – Inspection systems requiring Seismic Qualification per ASCE 7. Verify label, anchorage and mounting conforms to certificate of compliance				



5. Architectural components				
a. Inspection of erection and fastening of exterior cladding	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspection of erection and fastening of interior and exterior nonbearing walls	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Inspection of erection and fastening of interior and exterior veneer	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Access floors – inspection of anchorage	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Mechanical and electrical components:				
SDC C, D, E or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
a. Inspection of anchorage of electrical equipment for emergency power systems	<input type="checkbox"/>			
SDC E or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Inspection of anchorage installation or other electrical equipment	<input type="checkbox"/>			
SDC C, D, E or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Inspection of installation and anchorage of piping systems and associated mechanical units designed to carry hazardous materials	<input type="checkbox"/>			
SDC C, D, E, or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Inspection of installation and anchorage of ductwork designed to carry hazardous materials	<input type="checkbox"/>			
SDC, C, D, E, or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Inspection of installation and anchorage of vibration isolation systems	<input type="checkbox"/>			
SDC, C, D, E, or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Inspection of installation of mechanical and electrical equipment where automatic fire sprinkler systems are installed to verify clearances	<input type="checkbox"/>			
SDC B, C, D, E or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Seismic isolation system: Inspection during fabrication and installation of isolator units and energy dissipation devices that are part of the seismic isolation system	<input type="checkbox"/>			
SDC D, E or F			<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Cold-formed steel special bolted moment frames: Inspection during installation of frames part of the seismic isolation system	<input type="checkbox"/>			



<b>Seismic Resistance Structural Testing</b>				
1. Structural steel:				
SDC B, C, D, E, or F		05 12 00	<input type="checkbox"/>	<input type="checkbox"/>
a. Seismic force-resisting systems: Non-destructive testing in accordance with quality assurance requirements of AISC 341	<input type="checkbox"/>			
b. Structural steel elements: nondestructive testing in accordance with the quality assurance requirements of AISC 341	<input type="checkbox"/>	05 12 00	<input type="checkbox"/>	<input type="checkbox"/>
SDC B, C, D, E, or F			<input type="checkbox"/>	<input type="checkbox"/>
2. Nonstructural Components: Confirm certification of compliance of seismic qualification for supports and attachments has been submitted by manufacturer for specified systems	<input type="checkbox"/>			
SDC C, D, E or F		??	<input type="checkbox"/>	<input type="checkbox"/>
3. Designated seismic systems: Confirm certification of compliance of seismic qualification has been submitted for designated seismic systems	<input type="checkbox"/>			
SDC B, C, D, E, or F			<input type="checkbox"/>	<input type="checkbox"/>
4. Seismic isolation systems: Testing per ASCE 7, Section 17.8	<input type="checkbox"/>			

<b>Structural Observations</b>				
One or more of: RC IV; high-rise building; special structures as determined by RDP; required by building official	<input type="checkbox"/>			
1. Structural observations for structures				
SDC D, E, or F where RC III or IV or SDC E where RC I or II and > 2 stories above grade plane	<input type="checkbox"/>			
2. Structural observations for seismic resistance				
V = 130 mph or greater and RC III or IV	<input type="checkbox"/>			
3. Structural observations for wind resistance				



## **SECTION 01 42 00 - REFERENCES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 DEFINITIONS**

- A. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- B. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- C. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- D. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- E. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project Site.
- F. "Provide": Furnish and install, complete and ready for the intended use.

#### **1.3 INDUSTRY STANDARDS**

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
  - 1. When the building code in effect for the Project cites a different edition, comply with the building code-cited edition.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.



## 1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AA - Aluminum Association (The); [www.aluminum.org](http://www.aluminum.org).
2. AABC - Associated Air Balance Council; [www.aabc.com](http://www.aabc.com).
3. AAMA - American Architectural Manufacturers Association; [www.aamanet.org](http://www.aamanet.org).
4. AAPFCO - Association of American Plant Food Control Officials; [www.aapfco.org](http://www.aapfco.org).
5. AASHTO - American Association of State Highway and Transportation Officials; [www.transportation.org](http://www.transportation.org).
6. AATCC - American Association of Textile Chemists and Colorists; [www.aatcc.org](http://www.aatcc.org).
7. ABBA - Air Barrier Association of America; [www.airbarrier.org](http://www.airbarrier.org).
8. ABMA - American Bearing Manufacturers Association; [www.americanbearings.org](http://www.americanbearings.org).
9. ACI - American Concrete Institute; (Formerly: ACI International); [www.concrete.org](http://www.concrete.org).
10. ACPA - American Concrete Pipe Association; [www.concrete-pipe.org](http://www.concrete-pipe.org).
11. AEIC - Association of Edison Illuminating Companies, Inc. (The); [www.aeic.org](http://www.aeic.org).
12. AF&PA - American Forest & Paper Association; [www.afandpa.org](http://www.afandpa.org).
13. AGA - American Gas Association; [www.aga.org](http://www.aga.org).
14. AHAM - Association of Home Appliance Manufacturers; [www.aham.org](http://www.aham.org).
15. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); [www.ahrinet.org](http://www.ahrinet.org).
16. AI - Asphalt Institute; [www.asphaltinstitute.org](http://www.asphaltinstitute.org).
17. AIA - American Institute of Architects (The); [www.aia.org](http://www.aia.org).
18. AISC - American Institute of Steel Construction; [www.aisc.org](http://www.aisc.org).
19. AISI - American Iron and Steel Institute; [www.steel.org](http://www.steel.org).
20. AITC - American Institute of Timber Construction; [www.aitc-glulam.org](http://www.aitc-glulam.org).
21. ALSC - American Lumber Standard Committee, Incorporated; [www.alsc.org](http://www.alsc.org).
22. AMCA - Air Movement and Control Association International, Inc.; [www.amca.org](http://www.amca.org).
23. ANSI - American National Standards Institute; [www.ansi.org](http://www.ansi.org).
24. AOSA - Association of Official Seed Analysts, Inc.; [www.aosaseed.com](http://www.aosaseed.com).
25. APA - APA - The Engineered Wood Association; [www.apawood.org](http://www.apawood.org).
26. APA - Architectural Precast Association; [www.archprecast.org](http://www.archprecast.org).
27. API - American Petroleum Institute; [www.api.org](http://www.api.org).
28. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
29. ARI - American Refrigeration Institute; (See AHRI).
30. ARMA - Asphalt Roofing Manufacturers Association; [www.asphaltroofing.org](http://www.asphaltroofing.org).
31. ASCE - American Society of Civil Engineers; [www.asce.org](http://www.asce.org).
32. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
33. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; [www.ashrae.org](http://www.ashrae.org).
34. ASME - ASME International; (American Society of Mechanical Engineers); [www.asme.org](http://www.asme.org).
35. ASNT - American Society for Nondestructive Testing (The); [www.asnt.org](http://www.asnt.org).
36. ASSE - American Society of Safety Engineers (The); [www.asse.org](http://www.asse.org).
37. ASSE - American Society of Sanitary Engineering; [www.asse-plumbing.org](http://www.asse-plumbing.org).
38. ASTM - ASTM International; [www.astm.org](http://www.astm.org).
39. ATIS - Alliance for Telecommunications Industry Solutions; [www.atis.org](http://www.atis.org).
40. AWCI - Association of the Wall and Ceiling Industry; [www.awci.org](http://www.awci.org).



41. AWEA - American Wind Energy Association; [www.awea.org](http://www.awea.org).
42. AWI - Architectural Woodwork Institute; [www.awinet.org](http://www.awinet.org).
43. AWMAC - Architectural Woodwork Manufacturers Association of Canada; [www.awmac.com](http://www.awmac.com).
44. AWWA - American Water Works Association; [www.awwa.org](http://www.awwa.org).
45. AWS - American Welding Society; [www.aws.org](http://www.aws.org).
46. AWWA - American Water Works Association; [www.awwa.org](http://www.awwa.org).
47. BHMA - Builders Hardware Manufacturers Association; [www.buildershardware.com](http://www.buildershardware.com).
48. BIA - Brick Industry Association (The); [www.gobrick.com](http://www.gobrick.com).
49. BICSI - BICSI, Inc.; [www.bicsi.org](http://www.bicsi.org).
50. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); [www.bifma.com](http://www.bifma.com).
51. BISSC - Baking Industry Sanitation Standards Committee; [www.bissc.org](http://www.bissc.org).
52. BWF - Badminton World Federation; (Formerly: International Badminton Federation); [www.bwfbadminton.org](http://www.bwfbadminton.org).
53. CDA - Copper Development Association; [www.copper.org](http://www.copper.org).
54. CE – Conformite Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>.
55. CEA - Canadian Electricity Association; [www.electricity.ca](http://www.electricity.ca).
56. CEA - Consumer Electronics Association; [www.ce.org](http://www.ce.org).
57. CFFA - Chemical Fabrics & Film Association, Inc.; [www.chemicalfabricsandfilm.com](http://www.chemicalfabricsandfilm.com).
58. CFSEI - Cold-Formed Steel Engineers Institute; [www.cfsei.org](http://www.cfsei.org).
59. CGA - Compressed Gas Association; [www.cganet.com](http://www.cganet.com).
60. CIMA - Cellulose Insulation Manufacturers Association; [www.cellulose.org](http://www.cellulose.org).
61. CISCA - Ceilings & Interior Systems Construction Association; [www.cisca.org](http://www.cisca.org).
62. CISPI - Cast Iron Soil Pipe Institute; [www.cispi.org](http://www.cispi.org).
63. CLFMI - Chain Link Fence Manufacturers Institute; [www.chainlinkinfo.org](http://www.chainlinkinfo.org).
64. CPA - Composite Panel Association; [www.pbmdf.com](http://www.pbmdf.com).
65. CPPA – (Formerly: Corrugated Polyethylene Pipe Association; a Division of the Plastic Pipe Institute); [www.plasticpipe.org/drainage/](http://www.plasticpipe.org/drainage/).
66. CRI - Carpet and Rug Institute (The); [www.carpet-rug.org](http://www.carpet-rug.org).
67. CRRC - Cool Roof Rating Council; [www.coolroofs.org](http://www.coolroofs.org).
68. CRSI - Concrete Reinforcing Steel Institute; [www.crsi.org](http://www.crsi.org).
69. CSA - Canadian Standards Association; [www.csa.ca](http://www.csa.ca).
70. CSA - CSA International; (Formerly: IAS - International Approval Services); [www.csa-international.org](http://www.csa-international.org).
71. CSI - Construction Specifications Institute (The); [www.csinet.org](http://www.csinet.org).
72. CSSB - Cedar Shake & Shingle Bureau; [www.cedarbureau.org](http://www.cedarbureau.org).
73. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); [www.cti.org](http://www.cti.org).
74. CWC - Composite Wood Council; (See CPA).
75. DASMA - Door and Access Systems Manufacturers Association; [www.dasma.com](http://www.dasma.com).
76. DHI - Door and Hardware Institute; [www.dhi.org](http://www.dhi.org).
77. ECA - Electronic Components Association;(See ECIA).
78. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
79. ECIA – Electronic Components Industry Association; [www.eciaonline.org](http://www.eciaonline.org).
80. EIA - Electronic Industries Alliance; (See TIA).
81. EIMA - EIFS Industry Members Association; [www.eima.com](http://www.eima.com).
82. EJMA - Expansion Joint Manufacturers Association, Inc.; [www.ejma.org](http://www.ejma.org).
83. ESD - ESD Association; (Electrostatic Discharge Association); [www.esda.org](http://www.esda.org).
84. ESTA - Entertainment Services and Technology Association; (See PLASA).
85. ETL - Intertek (See Intertek); [www.intertek.com](http://www.intertek.com).
86. EVO - Efficiency Valuation Organization; [www.evo-world.org](http://www.evo-world.org).



87. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); [www.fiba.com](http://www.fiba.com).
88. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); [www.fivb.org](http://www.fivb.org).
89. FM Approvals - FM Approvals LLC; [www.fmglobal.com](http://www.fmglobal.com).
90. FM Global - FM Global; (Formerly: FMG - FM Global); [www.fmglobal.com](http://www.fmglobal.com).
91. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; [www.floridarroof.com](http://www.floridarroof.com).
92. FSA - Fluid Sealing Association; [www.fluidsealing.com](http://www.fluidsealing.com).
93. FSC - Forest Stewardship Council U.S.; [www.fscus.org](http://www.fscus.org).
94. FSEC - Florida Solar Energy Center; [www.fsec.ucf.edu](http://www.fsec.ucf.edu).
95. GA - Gypsum Association; [www.gypsum.org](http://www.gypsum.org).
96. GANA - Glass Association of North America; [www.glasswebsite.com](http://www.glasswebsite.com).
97. GS - Green Seal; [www.greenseal.org](http://www.greenseal.org).
98. HI - Hydraulic Institute; [www.pumps.org](http://www.pumps.org).
99. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
100. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
101. HPVA - Hardwood Plywood & Veneer Association; [www.hpva.org](http://www.hpva.org).
102. HPW - H. P. White Laboratory, Inc.; [www.hpwhite.com](http://www.hpwhite.com).
103. IAPSC - International Association of Professional Security Consultants; [www.iapsc.org](http://www.iapsc.org).
104. IAS – International Accreditation Service; [www.iasonline.org](http://www.iasonline.org).
105. IAS - International Approval Services; (See CSA).
106. ICBO - International Conference of Building Officials; (See ICC).
107. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
108. ICEA - Insulated Cable Engineers Association, Inc.; [www.icea.net](http://www.icea.net).
109. ICPA - International Cast Polymer Alliance; [www.icpa-hq.org](http://www.icpa-hq.org).
110. ICRI - International Concrete Repair Institute, Inc.; [www.icri.org](http://www.icri.org).
111. IEC - International Electrotechnical Commission; [www.iec.ch](http://www.iec.ch).
112. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); [www.ieee.org](http://www.ieee.org).
113. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); [www.ies.org](http://www.ies.org).
114. IESNA - Illuminating Engineering Society of North America; (See IES).
115. IEST - Institute of Environmental Sciences and Technology; [www.iest.org](http://www.iest.org).
116. IGCC - Insulating Glass Certification Council; [www.igcc.org](http://www.igcc.org).
117. IGMA - Insulating Glass Manufacturers Alliance; [www.igmaonline.org](http://www.igmaonline.org).
118. IGSHPA - International Ground Source Heat Pump Association; [www.igshpa.okstate.edu](http://www.igshpa.okstate.edu).
119. ILI - Indiana Limestone Institute of America, Inc.; [www.iliai.com](http://www.iliai.com).
120. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); [www.intertek.com](http://www.intertek.com).
121. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); [www.isa.org](http://www.isa.org).
122. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
123. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); [www.isfanow.org](http://www.isfanow.org).
124. ISO - International Organization for Standardization; [www.iso.org](http://www.iso.org).
125. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
126. ITU - International Telecommunication Union; [www.itu.int/home](http://www.itu.int/home).
127. KCMA - Kitchen Cabinet Manufacturers Association; [www.kcma.org](http://www.kcma.org).
128. LMA - Laminating Materials Association; (See CPA).
129. LPI - Lightning Protection Institute; [www.lightning.org](http://www.lightning.org).



130. MBMA - Metal Building Manufacturers Association; [www.mbma.com](http://www.mbma.com).
131. MCA - Metal Construction Association; [www.metalconstruction.org](http://www.metalconstruction.org).
132. MFMA - Maple Flooring Manufacturers Association, Inc.; [www.maplefloor.org](http://www.maplefloor.org).
133. MFMA - Metal Framing Manufacturers Association, Inc.; [www.metalframingmfg.org](http://www.metalframingmfg.org).
134. MHIA - Material Handling Industry of America; [www.mhia.org](http://www.mhia.org).
135. MIA - Marble Institute of America; [www.marble-institute.com](http://www.marble-institute.com).
136. MPPA - Moulding & Millwork Producers Association; (Formerly: Wood Moulding & Millwork Producers Association); [www.wmmpa.com](http://www.wmmpa.com).
137. MPI - Master Painters Institute; [www.paintinfo.com](http://www.paintinfo.com).
138. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; [www.mss-hq.org](http://www.mss-hq.org).
139. NAAMM - National Association of Architectural Metal Manufacturers; [www.naamm.org](http://www.naamm.org).
140. NACE - NACE International; (National Association of Corrosion Engineers International); [www.nace.org](http://www.nace.org).
141. NADCA - National Air Duct Cleaners Association; [www.nadca.com](http://www.nadca.com).
142. NAIMA - North American Insulation Manufacturers Association; [www.naima.org](http://www.naima.org).
143. NALP – National Association of Landscape Professionals (Formerly Professional Landcare Network); [www.landscapeprofessionals.org](http://www.landscapeprofessionals.org).
144. NBGQA - National Building Granite Quarries Association, Inc.; [www.nbgqa.com](http://www.nbgqa.com).
145. NBI – New Buildings Institute; [www.newbuildings.org](http://www.newbuildings.org).
146. NCAA - National Collegiate Athletic Association (The); [www.ncaa.org](http://www.ncaa.org).
147. NCMA - National Concrete Masonry Association; [www.ncma.org](http://www.ncma.org).
148. NEBB - National Environmental Balancing Bureau; [www.nebb.org](http://www.nebb.org).
149. NECA - National Electrical Contractors Association; [www.necanet.org](http://www.necanet.org).
150. NeLMA - Northeastern Lumber Manufacturers Association; [www.nelma.org](http://www.nelma.org).
151. NEMA - National Electrical Manufacturers Association; [www.nema.org](http://www.nema.org).
152. NETA - InterNational Electrical Testing Association; [www.netaworld.org](http://www.netaworld.org).
153. NFHS - National Federation of State High School Associations; [www.nfhs.org](http://www.nfhs.org).
154. NFPA - National Fire Protection Association; [www.nfpa.org](http://www.nfpa.org).
155. NFPA - NFPA International; (See NFPA).
156. NFRC - National Fenestration Rating Council; [www.nfrc.org](http://www.nfrc.org).
157. NHLA - National Hardwood Lumber Association; [www.nhla.com](http://www.nhla.com).
158. NICET - National Institute for Certification in Engineering Technologies; [www.nicet.org](http://www.nicet.org).
159. NLGA - National Lumber Grades Authority; [www.nlga.org](http://www.nlga.org).
160. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
161. NOMMA - National Ornamental & Miscellaneous Metals Association; [www.nomma.org](http://www.nomma.org).
162. NRCA - National Roofing Contractors Association; [www.nrca.net](http://www.nrca.net).
163. NRMCA - National Ready Mixed Concrete Association; [www.nrmca.org](http://www.nrmca.org).
164. NSF - NSF International; [www.nsf.org](http://www.nsf.org).
165. NSPE - National Society of Professional Engineers; [www.nspe.org](http://www.nspe.org).
166. NSSGA - National Stone, Sand & Gravel Association; [www.nssga.org](http://www.nssga.org).
167. NTMA - National Terrazzo & Mosaic Association, Inc. (The); [www.ntma.com](http://www.ntma.com).
168. NWFA - National Wood Flooring Association; [www.nwfa.org](http://www.nwfa.org).
169. PCI - Precast/Prestressed Concrete Institute; [www.pci.org](http://www.pci.org).
170. PDI - Plumbing & Drainage Institute; [www.pdionline.org](http://www.pdionline.org).
171. PLANET - Professional Landcare Network; (See NALP).
172. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); [www.plasa.org](http://www.plasa.org).
173. PTI - Post-Tensioning Institute; [www.post-tensioning.org](http://www.post-tensioning.org).
174. RCSC - Research Council on Structural Connections; [www.boltcouncil.org](http://www.boltcouncil.org).



175. RFCI - Resilient Floor Covering Institute; [www.rfci.com](http://www.rfci.com).
176. RIS - Redwood Inspection Service; [www.redwoodinspection.com](http://www.redwoodinspection.com).
177. SAE - SAE International; [www.sae.org](http://www.sae.org).
178. SCTE - Society of Cable Telecommunications Engineers; [www.scte.org](http://www.scte.org).
179. SDI - Steel Deck Institute; [www.sdi.org](http://www.sdi.org).
180. SDI - Steel Door Institute; [www.steeldoor.org](http://www.steeldoor.org).
181. SEFA - Scientific Equipment and Furniture Association; [www.sefalabs.com](http://www.sefalabs.com).
182. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
183. SGCC - Safety Glazing Certification Council; [www.sgcc.org](http://www.sgcc.org).
184. SIA - Security Industry Association; [www.siaonline.org](http://www.siaonline.org).
185. SJI - Steel Joist Institute; [www.steeljoist.org](http://www.steeljoist.org).
186. SMA - Screen Manufacturers Association; [www.smainfo.org](http://www.smainfo.org).
187. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; [www.smacna.org](http://www.smacna.org).
188. SMPTE - Society of Motion Picture and Television Engineers; [www.smpte.org](http://www.smpte.org).
189. SPFA - Spray Polyurethane Foam Alliance; [www.sprayfoam.org](http://www.sprayfoam.org).
190. SPIB - Southern Pine Inspection Bureau; [www.spib.org](http://www.spib.org).
191. SPRI - Single Ply Roofing Industry; [www.spri.org](http://www.spri.org).
192. SRCC - Solar Rating and Certification Corporation; [www.solar-rating.org](http://www.solar-rating.org).
193. SSINA - Specialty Steel Industry of North America; [www.ssina.com](http://www.ssina.com).
194. SSPC - SSPC: The Society for Protective Coatings; [www.sspc.org](http://www.sspc.org).
195. STI - Steel Tank Institute; [www.steeltank.com](http://www.steeltank.com).
196. SWI - Steel Window Institute; [www.steelwindows.com](http://www.steelwindows.com).
197. SWPA - Submersible Wastewater Pump Association; [www.swpa.org](http://www.swpa.org).
198. TABB - Testing, Adjusting and Balancing Bureau; [www.tabbcertified.org](http://www.tabbcertified.org).
199. TCA - Tilt-Up Concrete Association; [www.tilt-up.org](http://www.tilt-up.org).
200. TCNA - Tile Council of North America, Inc.; [www.tileusa.com](http://www.tileusa.com).
201. TEMA - Tubular Exchanger Manufacturers Association, Inc.; [www.tema.org](http://www.tema.org).
202. TIA - Telecommunications Industry Association; (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); [www.tiaonline.org](http://www.tiaonline.org).
203. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
204. TMS - The Masonry Society; [www.masonrysociety.org](http://www.masonrysociety.org).
205. TPI - Truss Plate Institute; [www.tpinst.org](http://www.tpinst.org).
206. TPI - Turfgrass Producers International; [www.turfgrasssod.org](http://www.turfgrasssod.org).
207. TRI - Tile Roofing Institute; [www.tilerroofing.org](http://www.tilerroofing.org).
208. UFAC - Upholstered Furniture Action Council; [www.ufac.org](http://www.ufac.org).
209. UL - Underwriters Laboratories Inc.; [www.ul.com](http://www.ul.com).
210. ULC - Underwriters Laboratories of Canada; [www.ulc.ca](http://www.ulc.ca).
211. UNI - Uni-Bell PVC Pipe Association; [www.uni-bell.org](http://www.uni-bell.org).
212. USAV - USA Volleyball; [www.usavolleyball.org](http://www.usavolleyball.org).
213. USBA - United States Badminton Association; [www.usabadminton.org](http://www.usabadminton.org).
214. USGBC - U.S. Green Building Council; [www.usgbc.org](http://www.usgbc.org).
215. USITT - United States Institute for Theatre Technology, Inc.; [www.usitt.org](http://www.usitt.org).
216. WA - Wallcoverings Association; [www.wallcoverings.org](http://www.wallcoverings.org).
217. WASTEC - Waste Equipment Technology Association; [www.wastec.org](http://www.wastec.org).
218. WCLIB - West Coast Lumber Inspection Bureau; [www.wclib.org](http://www.wclib.org).
219. WCMA - Window Covering Manufacturers Association; [www.wcmanet.org](http://www.wcmanet.org).
220. WDMA - Window & Door Manufacturers Association; [www.wdma.com](http://www.wdma.com).



221. WI - Woodwork Institute; (Formerly: WIC - Woodwork Institute of California); [www.wicnet.org](http://www.wicnet.org).
222. WMMPA - Wood Moulding & Millwork Producers Association; (See MMPA).
223. WSRCA - Western States Roofing Contractors Association; [www.wsrca.com](http://www.wsrca.com).
224. WWPA - Western Wood Products Association; [www.wwpa.org](http://www.wwpa.org).

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. IAPMO - International Association of Plumbing and Mechanical Officials; [www.iapmo.org](http://www.iapmo.org).
2. ICC - International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
3. ICC-ES - ICC Evaluation Service, LLC; [www.icc-es.org](http://www.icc-es.org).

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; [www.usace.army.mil](http://www.usace.army.mil).
2. CPSC - Consumer Product Safety Commission; [www.cpsc.gov](http://www.cpsc.gov).
3. DOC - Department of Commerce; National Institute of Standards and Technology; [www.nist.gov](http://www.nist.gov).
4. DOD - Department of Defense; <http://quicksearch.dla.mil>.
5. DOE - Department of Energy; [www.energy.gov](http://www.energy.gov).
6. EPA - Environmental Protection Agency; [www.epa.gov](http://www.epa.gov).
7. FAA - Federal Aviation Administration; [www.faa.gov](http://www.faa.gov).
8. FCC - Federal Communications Commission; [www.fcc.gov](http://www.fcc.gov).
9. FG - Federal Government Publications; [www.gpo.gov](http://www.gpo.gov).
10. GSA - General Services Administration; [www.gsa.gov](http://www.gsa.gov).
11. HUD - Department of Housing and Urban Development; [www.hud.gov](http://www.hud.gov).
12. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; <http://eetd.lbl.gov>.
13. NIST - National Institute of Standards and Technology; [www.nist.gov](http://www.nist.gov).
14. OSHA - Occupational Safety & Health Administration; [www.osha.gov](http://www.osha.gov).
15. SD - Department of State; [www.state.gov](http://www.state.gov).
16. TRB - Transportation Research Board; National Cooperative Highway Research Program; [www.trb.org](http://www.trb.org).
17. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; [www.ars.usda.gov](http://www.ars.usda.gov).
18. USDA - Department of Agriculture; Rural Utilities Service; [www.usda.gov](http://www.usda.gov).
19. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; [www.ojp.usdoj.gov](http://www.ojp.usdoj.gov).
20. USP - U.S. Pharmacopeia; [www.usp.org](http://www.usp.org).
21. USPS - United States Postal Service; [www.usps.com](http://www.usps.com).

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.



1. ADAAG - Accessibility Guidelines for Buildings and Facilities, Available from United States Access Board; [www.access-board.gov](http://www.access-board.gov).
2. AHERA - Asbestos Hazard Emergency Response Act, Available from US Environmental Protection Agency; [www.epa.gov](http://www.epa.gov).
3. BCNYS - Building Code of New York State, Available from New York State Department of State; [www.dos.ny.gov/DCEA/](http://www.dos.ny.gov/DCEA/).
4. CFR - Code of Federal Regulations; Available from Government Printing Office; [www.gpo.gov/fdsys](http://www.gpo.gov/fdsys).
5. DOD - Department of Defense; Military Specifications and Standards; Available from Department of Defense Single Stock Point; <http://quicksearch.dla.mil>.
6. DSCC - Defense Supply Center Columbus; (See FS).
7. FED-STD - Federal Standard; (See FS).
8. FS - Federal Specification; Available from DLA Document Services; [www.quicksearch.dla.mil](http://www.quicksearch.dla.mil).
  - a. Available from Defense Standardization Program; [www.dsp.dla.mil](http://www.dsp.dla.mil).
  - b. Available from General Services Administration; [www.gsa.gov](http://www.gsa.gov).
  - c. Available from National Institute of Building Sciences/Whole Building Design Guide; [www.wbdg.org/ccb](http://www.wbdg.org/ccb).
9. IBC - International Building Code, Available from International Code Council; [www.iccsafe.org](http://www.iccsafe.org).
10. LEED - Leadership in Energy and Environmental Design (Green Building Rating Systems), Available from U.S. Green Building Council; [www.usgbc.org](http://www.usgbc.org).
11. MILSPEC - Military Specification and Standards; (See DOD).
12. NEC - National Electrical Code, Available from NFPA (National Fire Protection Association); [www.nfpa.org](http://www.nfpa.org).
13. NSPC - National Standard Plumbing Code, Available from Plumbing-Heating-Cooling Contractors Association; [www.phccweb.org](http://www.phccweb.org).
14. NYSED/MPS - New York State Education Department Manual of Planning Standards, Available from New York State Education Department (Facilities Planning); [www.p12.nysed.gov/facplan/forms.html](http://www.p12.nysed.gov/facplan/forms.html).
15. USAB - United States Access Board; [www.access-board.gov](http://www.access-board.gov).
16. UFAS - Uniform Federal Accessibility Standards Available from Access Board; [www.access-board.gov](http://www.access-board.gov).
17. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).



E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF - State of California; Department of Consumer Affairs; Bureau of Electronic Appliance and Repair, Home Furnishings and Thermal Insulation; [www.bearhfti.ca.gov](http://www.bearhfti.ca.gov).
2. NYSDEC - New York State Department of Environmental Conservation; [www.dec.ny.gov](http://www.dec.ny.gov).
3. NYSDOH - New York State Department of Health; [www.health.ny.gov](http://www.health.ny.gov).
4. NYSDOT - New York State Department of Transportation; [www.dot.ny.gov](http://www.dot.ny.gov).
5. NYSED - New York State Education Department (Facilities Planning); [www.p12.nysed.gov/facplan/](http://www.p12.nysed.gov/facplan/).
6. NYSERDA - New York State Energy Research and Development Authority; [www.nyserda.ny.gov](http://www.nyserda.ny.gov).
7. OSHPD - Office of Statewide Health Planning and Development (State of California); [www.oshpd.ca.gov](http://www.oshpd.ca.gov).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00



## **SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for temporary utilities, support facilities, and security and protection.
- B. Related Requirements:
  - 1. Division 01 Section 01 0100 "Summary of Project" for responsibilities for temporary facilities and controls for the project.
- C. Temporary utilities include, but are not limited to, the following:
  - 1. Water service and distribution
  - 2. Electric power and lighting
  - 3. Heat
  - 4. Ventilation
  - 5. Sanitary facilities
  - 6. Storm and sanitary sewer
  - 7. Internet service
- D. Support facilities include, but are not limited to, the following:
  - 1. Field offices and storage
  - 2. Construction Manager's field office
  - 3. Dewatering
  - 4. Temporary enclosures
  - 5. Hoists and temporary elevator use
  - 6. Project signs and required notifications
  - 7. Wayfinding signs
  - 8. Waste collection and disposal
  - 9. Pest control
- E. Security and protection facilities include, but are not limited to, the following:
  - 1. Fire protection
  - 2. Barricades, warning signs and lights
  - 3. Environmental protection
  - 4. Tree and plant protection
  - 5. Temporary fencing
  - 6. Temporary enclosures
  - 7. Temporary partitions



### 1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner, Architect, Construction Manager, testing agencies, and authorities having jurisdiction.
- B. Water Service: Use water from the Owner's existing water system if available. If not available, contractor must supply water required for the performance of their work.
- C. Electric Power: Temporary electric power, including set up and maintenance is the responsibility of the Electrical Contractor.
  - 1. Use of electric power from the Owner's permanent power system (when operational) is available to all contractors without cost.
  - 2. Electrical Contractor is to provide power to the Construction Manager's job trailer.

### 1.4 SUBMITTALS, GENERAL

- A. General: Submit all informational submittals required by this Section concurrently.

### 1.5 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, crane staging areas, vehicle circulation, and phased parking areas for construction personnel.
- B. Implementation and termination schedule: each prime contractor shall submit a schedule indicating their proposed implementation and termination schedule for each temporary utility they are responsible for. This schedule shall be submitted along with the prime contractor's construction schedule.
- C. Shoring and Bracing Plan: Submit shoring and bracing plan, designed, signed and sealed by the qualified professional engineer responsible for its preparation.
- D. Temporary Signage: Provide shop drawings indicating the size, type and proposed location of signs for Construction Manager's review. Temporary and permanent site signage is by the Site Work Contractor.

### 1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.



- D. Regulations: The prime contractors shall comply with industry standards and applicable laws and regulations of authorities having jurisdiction.
- E. Standards: The prime contractors shall comply with NFPA 241 “Standard for Safeguarding Construction, Alterations and Demolition Operations”, ANSI-A10 Series standards for “Safety Requirements for Construction and Demolition”, and NECA Electrical Design Library “Temporary Electrical Facilities”.
  - 1. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 11 gauge, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts embedded minimum of 24” in the ground; minimum 1-1/2-inch-ID line posts and 2-1/2-inch-ID corner and pull posts.
- B. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- C. Plastic Barrier Fencing: High-density polyethylene mesh, high-visibility orange; minimum 4 feet high with minimum 6-foot-long wood stakes spaced a maximum of 8 feet on center, and with a continuous wood top stake; steel wire or nylon cable ties every 12 inches on center; with warning signs as indicated or required.
- D. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats minimum 36 by 60 inches.
- E. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

### 2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
  - 1. Store combustible materials apart from building.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.



- B. HVAC Equipment: Provide temporary heating units that have been tested and labeled by UL, FM or other recognized trade association related to the type of fuel be consumed. Use of permanent HVAC system is not permitted.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. HVAC Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.
    - a. Directly vent all combustion gases to the exterior.
    - b. Design system to use 100 percent outside make-up air.
    - c. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Temp-Air, Inc.
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.
- D. Temporary Toilet Units: Provide self-contained

## PART 3 - EXECUTION

### 3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

### 3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.



- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
1. Connect temporary sewers to **[municipal system]** **[private system indicated]** as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
1. Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
  2. Provide reduced pressure zone (RPZ) backflow preventer at connection to existing system. Provide appropriate drainage piping with air gap from the backflow preventer relief port to an approved discharge point.
    - a. Basis-of-Design Product: Watts Water Technologies; Series LF909.
  3. Provide 3/4-inch hose connections (at each level for multi-storied buildings) spaced so that a 200-foot-long hose will reach all areas of building where a Contractor requires water.
  4. Provide sign at each outlet indicating temporary water sources are not for human consumption
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and bottled drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Use of Owner's toilet facilities and drinking water facilities is not permitted.
1. Provide continual supply of toilet paper, paper towels, soap, and bottled drinking water.
- E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- F. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
1. Prior to commencing work, isolate the HVAC system in area where work is to be performed.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.



2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
  3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- G. Electric Power Service: Electrical Contractor to provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Install electric power service overhead unless otherwise indicated.
  2. Connect temporary service to Owner's existing power source, as directed by Owner. Maintain equipment in a condition acceptable to Owner.
  3. Service Requirements:
    - a. Provide 120/208 V, 60 Hz, single/three phase alternating current with capacity to accommodate maximum electric power and lighting requirements during construction.
    - b. Provide minimum of two each 120/208 V duplex outlets spaced so that a 50-foot-long extension cord will reach all areas of building where a Contractor requires electric power.
  4. Distribution System: Provide poles, pole hardware, overhead, exterior and interior wiring, transformers, and similar items required for electric power service and lighting.
    - a. Single-Phase Wiring: 3-wire, 120/208 V feeders, with No. 12 three- or four-wire branch circuits conforming to NEC No. 210-7 and OSHA requirements, with branch circuit protective device.
      - 1) Provide each branch circuit with 120/208 V, single-phase fused grounding-type power outlets, buss type SRX or SKY, with approved covered box and fuses as required.
      - 2) Provide panelboards containing ground fault interrupter type circuit breakers meeting applicable NEC requirements with required number of poles.
        - a) Basis-of-Design Product: Square D by Schneider Electric; QO120GFI for each branch circuit allowing maximum total load of 16 amps on each 20-amp branch circuit.
      - 3) Provide appropriately sized green grounding wiring complying with NEC requirements in feeder and branch circuits to provide grounding of all 120 and 208 V outlets in approved manner.
    - b. Three-Phase Wiring: Three-wire, 208 V feeders, with fused disconnect switches, allowing minimum 5 hp motor load at 208 V from each feeder, and providing four three-phase outlets on each floor near points of use.
  5. Extension Cords: Each contractor shall provide their own temporary 3-wire plug-in extensions with grounding features at both ends and other special equipment. Welding equipment shall be run from generators.



6. Temporary power shall be energized between 6:50am and 3:40pm daily.
- H. Lighting: Electrical Contractor to provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  2. Maintain OSHA standards for power and foot candle levels in all work areas requiring temporary lighting.
  3. Temporary lighting shall be energized daily between 6:50am and 3:50pm until permanent fixtures are installed and operational. Temporary lighting system shall not be controlled by any single contractor.
- I. Internet Service: Provide temporary internet service in Construction Manager's field office.
- J. Provide Contractor's superintendent with cellular telephone for use during business hours.

### 3.4 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
  2. Maintain support facilities until Substantial Completion.
- B. Temporary Roads and Paved Areas: Site Work Contractor to construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.
  1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
  1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
  2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31 Section "Earth Moving."
  3. Recondition base after temporary use, including removing contaminated material, regrading, proof rolling, compacting, and testing.



4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Site Work Contractor to provide temporary parking areas for all construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  2. Remove snow and ice as required to minimize accumulations in all areas of construction operation.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01 Section "Execution."
1. Waste from Construction Operations: Includes materials not intended or necessary for completion of Work, including packing materials, food waste, wastepaper, and similar items. Excavated material is not included in this definition.
  2. Chutes: Provide enclosed chutes for removal of waste from construction operations from levels above grade level or roof. Remove waste in a controlled manner; materials shall not be dropped or thrown from heights.
  3. Each prime contractor shall remove their own debris from the work area to a waste disposal container on a daily basis.
  4. Maintenance of a clean, safe work site shall be the responsibility of each prime contractor.
  5. Dumpsters are to be provided by all prime contractors for the performance of their work.
  6. All waste to be disposed of legally.
- H. Recycling Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.



2. Packaging:

- a. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
- b. Polystyrene Packaging: Separate and bag materials.
- c. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site.

3. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

- I. Shoring and Bracing: Provide and maintain shoring, bracing, and structural supports, designed by a qualified professional engineer, required to preserve stability and prevent movement, settlement, or collapse of new and existing construction and to prevent unexpected or uncontrolled movement or collapse of construction.
- J. Staging and Scaffolding: Provide facilities necessary for supporting materials and personnel in accordance with requirements of authorities having jurisdiction
- K. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
- L. Temporary Elevator Use: Use of elevators is not permitted.
- M. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- N. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- O. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
  - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.



- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control:
  - 1. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to “New York State Standards and Specifications for Erosion and Sediment Control” published by Empire State Chapter Soil and Water Conservation Society, under the direction of the New York State Department of Environmental Conservation, Division of Water.
    - a. Soil Erosion and Sediment Control (SESC) Plan: Comply with SESC Plan for this Project in consultation with appropriate local agencies and soil conservation service.
      - 1) At the Preconstruction Conference, Architect will provide the Contractor, for its signing, certificates of compliance, which the Architect will submit with the SESC plan to the New York State Department of Environmental Conservation (NYSDEC) to satisfy the State Pollutant Discharge Elimination System (SPDES) permit. The Contractor is responsible for complying with the SPDES permit and Stormwater Pollution Prevention Plan (SPPP) throughout construction.
      - 2) At the Preconstruction Conference, submit schedule for completion of installation of measures identified in SESC Plan.
        - a) Do not begin construction at the site until measures identified in the SESC Plan have been accepted by the Architect and installed at site.
      - 3) If conditions change during construction, submit proposed revisions to the SESC Plan to the Architect and other agencies identified in the SPDES permit and SPPP.
  - 2. General Soil Erosion and Sediment Control Measures:
    - a. Refer to SESC Plan for specific measures in addition to those identified below.
    - b. Take precautions to prevent mud from construction site accumulating on adjoining public roads and sidewalks and Owner's roads and sidewalks. Clean accumulations of mud from public roads and sidewalks and from Owner's roads and sidewalks when required by public authorities and when directed by Architect.
    - c. Plan and execute construction by methods to control surface drainage from cuts and fills and from borrow areas, and to prevent erosion and sedimentation.
      - 1) Minimize amount of bare soil exposed at one time.
      - 2) Provide temporary measures and erosion control devices or methods appropriate to conditions at site.
      - 3) Construct fills and waste areas by selective placement to avoid erosive surface silts or clays.



- 4) Inspect earthwork to detect evidence of erosion and sedimentation as outlined in the SPDES permit and SPPP. Immediately apply corrective measures at no cost to the Owner. Contractor will be responsible for any fines issued by any agency as a result of non-compliance with the SPDES permit and SPPP.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
1. Maintain protection zones free of weeds and trash.
  2. Do not prune roots or branches of trees to remain without approval of Architect.
    - a. If pruning is approved, engage an experienced, qualified arborist to perform pruning and treating.
  3. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.
- F. Site Enclosure Fence: Before construction operations begin, Site Work Contractor to furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
  2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner and one set to the Construction Manager.
- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Fall Protection:
1. The Roofing Contractor shall provide temporary cable top and mid railings per OSHA regulations.
  2. All prime contractors shall provide OSHA approved fall protection for their workers as required.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
1. Where temporary egress doors occur, provide minimum clear opening width of 36 inches.



- K. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior. Face exterior enclosures with plywood, unless otherwise approved, in advance, by Architect. Polyethylene sheet may not be used for exterior enclosures.
1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- L. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
  2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  3. Insulate partitions to control noise transmission to occupied areas.
  4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
  5. Paint surfaces exposed to view in areas occupied by Owner.
  6. Protect air-handling equipment.
  7. Provide walk-off mats at each entrance through temporary partition.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

### 3.6 MOISTURE AND MOLD CONTROL

- A. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
1. Protect porous materials from water damage.
  2. Protect stored and installed material from flowing or standing water.
  3. Keep porous and organic materials from coming into prolonged contact with concrete.
  4. Remove standing water from decks.
  5. Keep deck openings covered or dammed.
- B. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:



1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
  2. Keep interior spaces reasonably clean and protected from water damage.
  3. Periodically collect and remove waste containing cellulose or other organic matter.
  4. Discard or replace water-damaged material.
  5. Do not install material that is wet.
  6. Discard and replace stored or installed material that begins to grow mold.
  7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- C. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
  2. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

### 3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, HVAC, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
    - a. Heating: Provide heating between September 15 and May 31.
      - 1) Maintain minimum interior temperature of 60 deg F.
      - 2) Maintain relative humidity levels between 50 and 55 percent.
  2. Where temperature and humidity levels required for the proper installation and application of a product or system differ from those listed above, provide supplemental temporary services to maintain the required temperature and humidity levels.
  3. Use temporary duct systems, industrial fans, or other equipment to circulate tempered air to all areas of work.
  4. Maintain operation of temporary lighting in corridors, stairwells and similar locations on a 24-hour basis.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor.



2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00



## **SECTION 01 60 00 - PRODUCT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

#### **1.3 DEFINITIONS**

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
  - 2. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products.

#### **1.4 ACTION SUBMITTALS**

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.



2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request.

- a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."

- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

- B. The use of asbestos containing building materials is prohibited.

1. Contractor is responsible for providing closeout documentation certifying no asbestos containing building materials have been used in the Work.

## 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

- B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
    2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
    3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
    4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.



C. Storage:

1. Store products to allow for review and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Warranty periods related to Boilers and Accessory Equipment, and Air Conditioning Equipment do not begin until one year after the date of substantial completion.
3. See individual Specification Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.



3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Products:
  - a. Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
2. Manufacturers:
  - a. Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
3. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers, or a product by an unnamed manufacturer that complies with requirements. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.



## 2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

## PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00



## **SECTION 01 73 00 - EXECUTION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Examination of conditions.
  - 2. Preparation for construction.
  - 3. Construction layout.
  - 4. Field engineering and surveying.
  - 5. Installation of the Work.
  - 6. Cutting and patching.
  - 7. Progress cleaning.
  - 8. Starting and adjusting.
  - 9. Protection of installed construction.
  - 10. Correction of the Work.

#### **1.3 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For land surveyor and professional engineer.
- B. Structural Layout Plan: Survey of Structural Grid in relation to existing building(s).

#### **1.5 CLOSEOUT SUBMITTALS**

- A. Certificates: Submit certificate signed by land surveyor or professional engineer as applicable certifying that location and elevation of improvements comply with requirements.
- B. Certified Surveys: Submit two copies signed by land surveyor.



## 1.6 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.
- C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
  - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
  - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.



- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
  - 1. Structural Layout Plan: Perform Survey of Structural Grid as provided in Contract Documents, including any specific Layout Notes and/or Plan. Provide Structural Layout Plan for review by Engineer prior to performing any additional work.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

### 3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.



1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.



- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.



1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
  2. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.



### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.



- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section “General Commissioning Requirements.”
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Architect may issue “Construction Deficiency Report” for items identified by Architect as needing correction. Promptly repair or remove and replace defective construction identified in Construction Deficiency Report. Provide written notification to Architect when identified item has been corrected.
- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00



## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. All Submittals identified in Section 01 77 00 are classified as “Informational Submittals” in accordance with Specification Section 01 33 00.

#### **1.3 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Submittals Prior to Substantial Completion: Complete the following before Contract-scheduled date of Substantial Completion:
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, electrical inspection reports, preliminary balance reports, and similar releases.
  - 2. Submit notarized letter on Contractor’s letterhead certifying no asbestos containing building materials have been used in the Work. Also include a copy in the Operation and Maintenance Manuals.
  - 3. Submit testing, adjusting, and balancing records. Also include a copy in the Operation and Maintenance Manuals.
  - 4. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- B. **Procedures Prior to Substantial Completion:** Complete the following before Contract-scheduled date of Substantial Completion:
  - 1. Advise Owner of pending insurance changeover requirements.



2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  3. Complete startup and testing of systems and equipment.
  4. Perform preventive maintenance on equipment used prior to Substantial Completion. Maintenance to be performed by a factory authorized service representative so as not to void the equipment warranty.
  5. Advise Owner of changeover in heat and other utilities.
  6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  7. Complete all items on any Field Observation and Construction Deficiency Reports and submit a copy of the reports to the Architect and Construction Manager identifying how each item was addressed in detail, including the date of completion.
  8. Complete final cleaning requirements as specified below, including touchup painting.
  9. Repair and restore marred exposed finishes to eliminate visual defects.
  10. Complete all items noted as requiring completion/correction from the Commissioning consultant and TAB (Testing and Balancing) consultant.
- C. Inspection: No later than 14 days prior to the Contract-scheduled date of Substantial Completion, submit a letter to the Architect and Construction Manager confirming the work is on schedule for Substantial Completion by the contract specified date. No later than seven days after Contract-scheduled date of Substantial Completion (including authorized adjustments), the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. Absent the Contractor letter confirming readiness of work, the Architect may elect to postpone the Substantial Completion inspection.
1. Additional Inspections: Request additional Substantial Completion inspections when the work that was not complete for the scheduled Substantial Completion inspection is now ready to inspect.
    - a. Costs for such additional Substantial Completion inspections will be deducted from sums otherwise due the Contractor by deduct Change Order.
  2. Results of completed inspection will form the basis of requirements for final completion.

#### 1.4 FUNCTIONAL COMPLETION PROCEDURES

- A. Functional Completion applies to Contract Work being Commissioned. The commissioning of Divisions 01, 22, 23, and 26 (as applicable to each Contractor) must be complete prior to Functional Completion, except for the following:
1. Deferred Work approved in writing by the Architect.
  2. Control system training planned to be performed after occupancy and final acceptance



3. Any required seasonal TAB work to be formed during Warranty period.
  4. Other approved deferred testing.
- B. Completion of Commissioning required to demonstrate Functional Completion includes the following as applicable for all systems, but is not limited to:
1. Completed and signed pre-functional checklists and start-up documentation.
  2. Requested trend logs complete, data and forms submitted and approved.
  3. Completion of all functional testing.
  4. Required training of Owner personnel completed and approved.
  5. Submission of final approved TAB report.
  6. Submission of final approved commissioning report.
  7. Submission of the approved O&M manuals.
  8. All identified deficiencies have been corrected or are approved in writing by the Owner to be excepted from this milestone.
- C. The Architect will determine the date of Functional Completion after reviewing the Commissioning Agent's recommendation for Functional Completion.

## 1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before final inspection for determining final completion, complete the following:
1. Submit copy of Architect's Substantial Completion inspection list of items to be completed or corrected. The copy of the list shall state that each item has been completed or otherwise resolved for acceptance, what corrective action was taken, and the date of completion. Items that are in dispute shall have an explanation attached.
  2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Division 01 Section "Demonstration and Training."
  3. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, property surveys, and similar final record information.
  4. Submit closeout submittals specified in individual Specification Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  5. Submit maintenance material submittals specified in individual Specification Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Contractor to provide a transmittal detailing all delivered maintenance materials and obtain Owner signature confirming delivery of such; a copy of transmittal with Owner's signature shall be provided with Closeout submittals. Label with manufacturer's name and model number where applicable. All keys shall be tagged and labeled.



6. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  7. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
- B. Inspection: No later than seven days after the Contract-scheduled date for final completion, Architect and Construction Manager will proceed with the final completion inspection. The Architect will review the final Certificate for Payment after the inspection or will notify the Contractor of the outstanding items that must be completed or corrected before the certificate will be processed.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete has been completed or corrected. The Owner and Architect and Construction Manager reserve the right to add items to the Substantial Completion and final completion inspection lists as long as it is part of the Contractor's work. Complete all Contract requirements prior to the final completion inspection to avoid any further re-inspection cost.
    - a. Costs for such reinspections and any costs for extension of the Architect's and Construction Manager's services will be deducted from sums otherwise due the Contractor.

#### 1.6 SUBMITTAL OF PROJECT WARRANTIES

- A. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual. Warranties for all equipment, materials, and systems on the Project are to start no sooner than the date of substantial completion. Provide extended warranties for all equipment, materials, and systems that may have been turned over to the Owner for its use regardless of the phased completion of the Project.
- B. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
1. Submit two digital media copies, PDF on thumb drive.
- C. Warranties in Paper Form:
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.



4. Submit two paper copies, as listed above.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  1. Complete the following cleaning operations before inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Remove surface dust and dirt from all vertical and horizontal painted surfaces. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.



- g. Sweep concrete floors broom clean in unoccupied spaces using sweeping compound that is compatible with new finishes.
  - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
  - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - j. Remove labels that are not permanent.
  - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
  - o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - p. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to condition acceptable to Owner.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.



2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
  - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00



## **SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Manual Format: Submit operation and maintenance manuals in the following format:
  - 1. Two paper copies as listed below.
  - 2. Two digital media copies, PDF format on thumb drive.
- B. Prior to submission of paper copies and thumb drives as listed above, submit electronic files in PDF format for review and approval.

#### **1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS**

- A. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
  - 1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.



3. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
  4. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
- B. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

## 1.5 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title Page: Include the following information:
    - a. Subject matter included in manual.
    - b. Name and address of Project.
    - c. Date of submittal.
    - d. Name and contact information for Contractor.
  2. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
    - a. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
  3. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.



## 1.6 OPERATION AND MAINTENANCE MANUALS

- A. Operation Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
    - a. Product name and model number. Use designations for products indicated on Contract Documents.
    - b. Manufacturer's name.
    - c. Equipment identification with serial number of each component.
    - d. Equipment function.
    - e. Complete nomenclature and number of replacement parts.
  2. Operating Procedures: Include the following, as applicable:
    - a. Startup procedures.
    - b. Routine and normal operating instructions.
    - c. Regulation and control procedures.
    - d. Normal shutdown instructions.
    - e. Seasonal and weekend operating instructions.
    - f. Special operating instructions and procedures.
  3. Emergency Procedures: Include the following, as applicable:
    - a. Instructions on stopping.
    - b. Shutdown instructions for each type of emergency.
    - c. Operating instructions for conditions outside normal operating limits.
    - d. Special operating instructions and procedures.
  4. Wiring diagrams.
  5. Control diagrams.
  6. Piped system diagrams.
    - a. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
  7. Precautions against improper use.
  8. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- B. Maintenance Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, manufacturers' maintenance documentation, maintenance and service schedules, spare parts list and source information, maintenance service contracts, repair materials and sources, and warranties and bonds, as described below.



1. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
2. Product Information: Include the following, as applicable:
  - a. Product name and model number.
  - b. Manufacturer's name.
  - c. Color, pattern, and texture.
  - d. Material and chemical composition.
  - e. Reordering information for specially manufactured products.
3. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Schedule for routine cleaning and maintenance.
  - e. Repair instructions.
4. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - a. Standard maintenance instructions and bulletins.
  - b. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - c. Identification and nomenclature of parts and components.
  - d. List of items recommended to be stocked as spare parts.
5. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - a. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - b. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
6. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
7. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
8. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.



9. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - a. Include procedures to follow and required notifications for warranty claims.

## 1.7 MANUAL PREPARATION

- A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  1. Do not use original project record documents as part of operation and maintenance manuals.
- D. Submittals: Include copy of each product submittal approved by Architect.
  1. If the "As-Specified Verification Form" was used as the product submittal, include all pertinent product data as described in this Section.
- E. Safety Data Sheets (SDS): Include copy of SDS for each product installed.
- F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23



## **SECTION 01 78 39 - PROJECT RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Miscellaneous record submittals.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Record Drawings: Contractor to submit a full set of marked-up record drawings pertaining to their contract. Provide each drawing, whether or not changes and additional information were recorded. Comply with the following:
  - 1. Submit one full size set of the original, marked-up record prints.
  - 2. Submit two digital media copies, in color, in PDF format on thumb drives. PDFs to be saved and submitted as one file.
  - 3. Prior to submission of paper copies and thumb drives as listed above, submit electronic files in PDF format for review and approval.
- B. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities.
  - 1. Submit two paper copies of each submittal.

#### **1.4 RECORD DRAWINGS**

- A. Record Prints: Architect will provide Contractor with one paper set of Contract Drawings at beginning of Work at no cost.
  - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.



2. Content: Types of items requiring marking include, but are not limited to, the following:

- a. Dimensional changes to Drawings.
- b. Revisions to details shown on Drawings.
- c. Revisions to routing of piping and conduits.
- d. Revisions to electrical circuitry.
- e. Locations of concealed internal utilities.
- f. Changes made by Addendum.
- g. Changes made by Architect's Supplemental Instruction (ASI) forms.
- h. Changes made by Change Order or Construction Change Directive.
- i. Changes made following Architect's written orders.

3. Mark record sets with red, permanent marker.

B. Record Digital Data Files: Prepare a full set of digital data files of the Contract Drawings from the marked-up record prints.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Indicate name of Contractor.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

## 1.5 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

## 1.6 RECORDING AND MAINTENANCE

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's, Construction Manager's and Owner's reference during normal working hours.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 39



## **SECTION 01 79 00 - DEMONSTRATION AND TRAINING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Instruction in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training video recordings.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Attendance Record: For each demonstration and training session, submit list of participants, subjects covered, and length of instruction time.
- B. Demonstration and Training Video Recordings: Submit two copies of each demonstration and training session.
  - 1. Identification: On each copy, provide an applied label with the following information:
    - a. Name of Project.
    - b. Name of Architect.
    - c. Name of Construction Manager.
    - d. Name of Contractor.
    - e. Name of service representative providing training.
    - f. Name of instructor.
    - g. Date of video recording.

#### **1.4 QUALITY ASSURANCE**

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

#### **1.5 COORDINATION**

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.



## 1.6 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training for each system and for equipment not part of a system, as required by individual Specification Sections. Include instruction for the following as applicable to the system, equipment, or component:
1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Operating standards.
  2. Documentation: Review the following items in detail:
    - a. Manuals.
    - b. Warranties and bonds.
  3. Operations: Include the following, as applicable:
    - a. Startup procedures.
    - b. Routine and normal operating instructions.
    - c. Regulation and control procedures.
    - d. Safety procedures.
    - e. Normal shutdown instructions.
    - f. Operating procedures for emergencies.
    - g. Seasonal and weekend operating instructions.
    - h. Special operating instructions and procedures.
  4. Adjustments: Include the following:
    - a. Noise and vibration adjustments.
    - b. Economy and efficiency adjustments.
  5. Troubleshooting: Include the following:
    - a. Diagnostic instructions.
    - b. Test and inspection procedures.
  6. Maintenance: Include the following:
    - a. Types of cleaning agents to be used and methods of cleaning.
    - b. Procedures for routine cleaning
    - c. Procedures for preventive maintenance.
    - d. Procedures for routine maintenance.
  7. Repairs: Include the following:
    - a. Diagnosis instructions.
    - b. Repair instructions.



## 1.7 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.

## 1.8 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.
  - 1. Submit video recordings on CD-ROM or thumb drive.
- B. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 79 00



## **SECTION 02 41 19 - SELECTIVE DEMOLITION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.

#### **1.3 DEFINITIONS**

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

#### **1.4 MATERIALS OWNERSHIP**

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, art work, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

#### **1.5 SUBMITTALS, GENERAL**

- A. General: Submit all informational submittals required by this Section concurrently.



## 1.6 INFORMATIONAL SUBMITTALS

- A. Predemolition Photographs or Video: Show existing conditions and artwork, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit photos or video recordings on thumb drive before Work begins. Include copy of key plan indicating each photograph's or video's location and direction.
  - 1. Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modification.
  - 2. Photographs: Provide high-resolution color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels.
    - a. Name each image with date photograph was taken, location, and unique sequential number keyed to accompanying key plan in file name.
  - 3. Video: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels.
    - a. Name each video recording with date video recording was recorded, location, and unique sequential number keyed to accompanying key plan in file name.
    - b. Begin narration of each video recording with Contractor's name, videographer's name, and location in Project.
      - 1) Describe scenes on video recording by audio narration.
      - 2) Confirm date and time at beginning and end of recording.

## 1.7 CLOSEOUT SUBMITTALS

- A. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

## 1.8 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

## 1.9 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.



- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
  - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

#### 1.10 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and restore materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:
  - 1. Roofing.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

#### 1.11 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

### PART 2 - PRODUCTS

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.



- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- D. Record existing conditions by use of preconstruction photographs or video.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by demolition operations.
  - 2. Inventory and record the condition of items to be removed and reinstalled. Provide photographs or video of conditions that might be misconstrued as damage caused by demolition operations.
- E. Beginning selective demolition constitutes Contractor's acceptance of conditions.

### 3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

### 3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.



1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
- B. Remove temporary barricades and protections where hazards no longer exist.

### 3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain adequate ventilation when using cutting torches.
  6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  8. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.



C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and restore items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and restoring. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- C. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for Removal of Resilient Floor Coverings."
- D. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Division 07 Sections for new roofing requirements.

### 3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.



- B. Burning: Do not burn demolished materials.

### 3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19



**SECTION 02 65 00 - STORAGE TANK PERMANENT CLOSURE****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Permanently closing aboveground fuel tank by removal.
  - 2. Performing a site assessment of the existing installation.

**1.3 DEFINITIONS**

- A. Inerting: The displacement of oxygen (and the incidental removal of some vapors) to deprive a potential fire of a source of oxygen.
- B. Purging: The removal of flammable vapors from a tank to deprive a potential fire of any fuel source.
- C. UST: Underground storage tank.

**1.4 INFORMATIONAL SUBMITTALS**

- A. Laboratory analysis reports for soil and groundwater samples taken.
- B. Site Assessment Report.

**1.5 CLOSEOUT SUBMITTALS**

- A. Project Record Mylars: Comply with requirements of Section 01 31 00 "Project Management and Coordination" and as modified below.
  - 1. Conform to the requirements outlined in 6NYCRR Parts 614.2 through 614.5.
  - 2. Include a statement that the Permanent Tank Closure meets all applicable State, Federal and Local Requirements.
  - 3. Include locations of samples taken for field and laboratory analysis.

**1.6 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA Flammable and Combustible Liquids Code (NFPA #30, #30A and #17, latest editions).
- B. Comply with requirements of the New York State Petroleum Bulk Storage Code (6NYCRR Parts 612, 613 and 614).



- C. Comply with requirements of the New York State Department of Environmental Conservation (NYSDEC) SPOTS Memo No. 14 – Site Assessments at Bulk Storage Facilities.
- D. Comply with requirements of “Assessment and Remediation of Underground Petroleum Releases,” API Publication 1628.
- E. Comply with requirements of the EPA and of state and local authorities having jurisdiction. Include recording of fuel-oil storage tanks.

## PART 2 - PRODUCTS

### 2.1 BACKFILL MATERIAL

- A. Stockpile excavated materials for backfill. Refer to Section 31 20 00 "Earth Moving" for additional fill materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Evaluate site to determine the potential for encountering contaminated backfill, soil, or groundwater that may require special handling.
- B. If during the tank closure process product or product contaminated soil or ground water is discovered, stop closure process and alert Owners representative.
  - 1. If petroleum is present in the soil then it must be reported as a spill to the DEC within two hours. The presence of product may require the installation of one or more ground water monitoring/recovery wells or removal of the tank to take remedial action to clean up the site. Comply with all NYSDEC requirements for contamination remediation.
- C. Coordinate with the Owner and the Owner’s Representative to identify an area for stockpiling excavated backfill and soils.

### 3.2 EARTHWORK

- A. Comply with requirements in Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling.

### 3.3 PREPARATION

- A. Notify the Regional NYSDEC office a minimum of 30 days prior to commencing with tank closure work. This is done by modifying the registration information for the facility on the bulk storage registration application forms supplied by the Owner. Call the regional office to inform the regional bulk storage staff at least three (3) days before commencing with the closure and notify them of the actual date and time of the work.



- B. All liquids and residues removed from the tank shall be tested and handled in accordance with appropriate federal, state and local regulations.
- C. Comply with NFPA 30 and NFPA 31 requirements for prevention of accidental ignition.
- D. Close equipment shutoff valves before disconnecting fuel oil piping.
- E. Drain all usable product from piping back into tank.
- F. The Owner shall remove usable product in tank to its lowest draw-off point. Remove any residual fuel from the tank.
- G. Flush supply and return piping into the tank with a minimal amount of water. No more than 1 gallon of water per 10 feet of NPS 1-1/2 piping or 2 gallon of water per 10 feet of NPS 2 piping should be used.
- H. Clean the tank interior with a high pressure rinse using as little water as possible to remove loose scale, corrosion and residual product. In the case of a fuel oil storage tank where large amounts of sludge and/or tar may be present, it may be necessary to enter the tank and manually remove such wastes. Cleaning by brushing, shoveling and/or scraping may also be required to clean the inside of the tank.
- I. Take all necessary safety precautions while cleaning the tank interior and recovering the wastes and drumming them for proper disposal.
- J. Pump out any remaining liquid below the draw-off point by use of a hand pump or a vacuum pump (non-sparking) and dispose of the waste water generated by this process in accordance with solid and/or hazardous waste regulations.
- K. Modify the existing tank vent to ensure the displacement of tank vapors caused by purging and inerting process are at least 12 feet above grade and 3 feet from any adjacent roof area.
- L. Disconnect the fill pipe, gauge pipe, vapor recovery truck connection, submersible pumps or other tank fixtures and all product lines. Cap or plug open ends of lines which are not to be used further to ensure so all vapors exit through the vent line during the vapor-freeing process.
- M. Leave the vent line connected until the tank is rendered vapor free.
- N. Ensure the work area is free of any ignition sources.

### 3.4 PURGING AND INERTING PROCESS

- A. Purging: Use one of the following methods to render the tank safe. In all methods, the tank atmosphere should be checked to ensure that petroleum vapors have been satisfactorily purged from the tank.
  - 1. Dry Ice; 1.5 pounds per 100 gallons of tank capacity. The dry ice should be crushed and distributed evenly over the greatest possible area of the tank's interior. As the dry ice vaporizes flammable vapors will flow out of the tank. Therefore, observe all safety precautions regarding flammable vapors.



2. Carbon Dioxide (CO<sub>2</sub>); an alternative to dry ice is to introduce CO<sub>2</sub> gas directly into the tank (via the fill line) to purge flammable vapors. A minimum of one 75 pound cylinder of CO<sub>2</sub> gas per 2,000 gallons of tank volume should be used. Care must be exercised to prevent buildup of any static charge. The nozzle must be bonded or grounded and the gas introduced slowly to reduce static.
  3. Nitrogen; Vapors within the storage tank must be displaced with an amount of nitrogen gas equal to or greater than the volume of the tank atmosphere. Bond or ground the nozzle or hose to prevent static buildup.
- B. Inerting: Ventilate the tank with compressed air through a diffused air blower pipe. Properly bond the air-diffusing pipe to prevent the discharge of a spark. Ensure compressor is providing a clean air supply that is free of volatile vapors. Air pressure in tank shall not exceed 5 psig per square inch gauge.
  - C. Control ignition sources during tank purging and inerting operations regardless of the chosen method.
  - D. Test the tank atmosphere with an oxygen meter to ensure that the tank is safe. The oxygen meter will give a reading of % oxygen per volume. A reading of 6 - 7% oxygen is considered a safe condition.
  - E. Repeat the purging and inerting processes until the tank atmosphere tests safe.

### 3.5 TANK REMOVAL

- A. As soon as the petroleum vapors are satisfactorily purged from the tank, remove the vent connection. Cap and plug the abandoned vent pipe.
- B. Plug or cap all holes in the tank before moving tank from site. Leave a 1/8 inch vent hole in one of the plugs to prevent the tank from being subjected to excessive pressure differential caused by extreme temperature changes.
- C. Excavate around the tank to uncover for removal. Remove the tank from the excavation and place the tank on a level surface and block the tank to prevent movement.
- D. Perform the site assessment in the open excavation.
- E. Clean the interior of the tank or move the tank to a tank storage yard for cleaning.
- F. Test the tank atmosphere immediately before the tank is removed from the site to ensure the tank is safe for transport. If combustible gas indicator reading is higher than allowable levels, purge vapors from tank as indicated in "Purging and Inerting Process" Article above.
- G. Secure the tank on a truck for transport, ensuring the vent hole is located at the uppermost point of the tank.
- H. If tank is not cut up or crushed on site, paint label on tank after removal from ground, but prior to removal from site.
- I. Label tank with the following information in legible letters at least 2 inches high.



“TANK HAS CONTAINED DIESEL  
NOT VAPOR FREE  
NOT SUITABLE FOR STORAGE OF FOOD OR LIQUIDS INTENDED FOR  
HUMAN OR ANIMAL CONSUMPTION  
DATE OF REMOVAL: MONTH/DAY/YEAR”

- J. Remove tank from site as promptly as possible after vapor-freeing procedures have been completed. Transport tank in accordance with all local, state and federal regulations.

### 3.6 SITE ASSESSMENT

- A. Perform a Phase I Site assessment of the installation in accordance with the NYSDEC SPOTS Memo No. 14 – Site Assessments at Bulk Storage Facilities.
- B. Continuously observe the excavation work closely for signs of contamination; stained soil, smelling for chemical or petroleum odors, looking for signs of sheen on water surface. Document field observations and include in the site assessment record.
- C. Perform a bucket test or jar test on a sample of the excavated material. Mix a small quantity of excavated soil in a bucket or jar and clean water. Allow the mixture to settle. Observe the water surface for evidence of sheen. Document field observations and include in the site assessment record.
- D. Utilize field instruments such as explosimeters, combustible gas indicators, photoionization detectors, flame ionization detectors, organic vapor analyzers, and/or colorimetric reading tubes as required for on-the-spot analyses for contamination.
- E. Sampling for field analysis:
  - 1. Take a minimum of three (3) borings around the tank to groundwater or bedrock. Take soil samples at each boring from a split spoon at 5 feet intervals to a depth of 3 to 6 feet 10 feet 10 feet below the tank bottom until ground water or bedrock is encountered. If ground water is encountered, take a groundwater sample from each boring. Take a final sample at the soil/water or soil/bedrock interface.
    - a. If the field instruments do not indicate any signs of contamination in the samples taken, then only send the final sample at the soil/water or soil/bedrock interface to the lab for analysis.
  - 2. Take a sample every 20 feet along the pipe run (or at every joint, if known) and analysis with a field instrument.
  - 3. Utilize headspace analysis for analyzing soil and water samples taken. This involves putting the samples in a jar or bag, sealing it, and after a period of time, analyzing the vapor space in the top of the jar or bag with the field instruments listed above. Document field observations and include in the site assessment record.



F. Sampling for lab analysis:

1. Coordinate lab sampling schedule with a State Certified Testing Laboratory well in advance of work to avoid delays in the schedule. Consult with the lab as to the number and types of samples required for the type of analysis to be done, type of report that is expected and how long it will take to get the results.
2. Ensure proper care and custody of the samples is taken. Sampling procedures including number, type, location, retrieval, care, custody, and analysis samples are thoroughly discussed in the API Publication 1628 "Assessment and Remediation of Underground Petroleum Releases".
3. If the field instruments do not indicate any signs of contamination in the boring samples taken, then only send the final sample at the soil/water or soil/bedrock interface to the lab for analysis.
4. Prepare a site assessment report that documents how the site assessment was performed, where the samples were taken, dates they were taken, who took them, types of samples, depth of samples, field analysis results and lab analysis reports.
5. Include a photographic record of the site assessment work performed in the report.
6. Include in the report the date of tank closure in place, the method of conditioning the tank for closure in place and the material used to fill the tank.

3.7 SITE RESTORATION

- A. Backfill and fill excavation with stockpiled excavation material, clean sand or pea gravel in accordance with Section 31 20 00 "Earth Moving" after the NYSDEC Inspector has approved the hole as clean.
- B. Restore disturbed grade to match existing in accordance with Section 31 20 00 "Earth Moving".

END OF SECTION 02 65 00



**SECTION 02 82 00  
ASBESTOS ABATEMENT PROCEDURES**

AT: WALLKILL CENTRAL SCHOOL DISTRICT –  
WALLKILL, NEW YORK  
SED # 62-18-01-06-0-002-014  
SED # 62-18-01-06-0-003-014  
SED # 62-18-01-06-0-005-015  
SED # 62-18-01-06-0-001-019

OWNER: WALLKILL CENTRAL SCHOOL DISTRICT  
1500 ROUTE 208  
WALLKILL, NEW YORK 12589  
PH. (845) 895-7100

CONSULTANT: QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.  
(QUES&T)  
1376 ROUTE 9  
WAPPINGERS FALLS, NEW YORK 12590  
PH. (845) 298-6031  
FX. (845) 298-6251



**BID SPECIFICATION DATED: November 4, 2022**



## **PART I – GENERAL**

### **1.01 DESCRIPTION**

- A. All work under this contract shall be performed in strict accordance with the specifications and all applicable laws for asbestos removal projects. The contractor responsible for abatement shall furnish all labor, materials, supervision, services, insurance and equipment necessary for the complete and total removal of Asbestos-containing Materials (ACM) as described herein, in attachments to the specification, Job Specific Variance(s) and/or as directed by Wallkill CSD (here-in-after the "Owner") and/or the Owners Representative(s) to support the to the following Wallkill CSD projects:
- Wallkill Central School District – Reconstruction
    - John G Borden Middle School – SED # 62-18-01-06-0-002-014
    - Ostrander Elementary School – SED # 62-18-01-06-0-003-014
    - Plattekill Elementary School – SED # 62-18-01-06-0-005-015
    - Leptondale Elementary School – SED # 62-18-01-06-0-001-019
- B. Contractor responsible for abatement shall provide for personnel air monitoring to satisfy OSHA regulation 29 CFR Parts 1926.1101(f). All work performed shall be in strict accordance with applicable provisions and regulations promulgated under New York State Department of Labor, Industrial Code 56 (ICR-56).
- C. The contractor responsible for abatement shall satisfy the requirements for asbestos projects issued by the New York State Department of Labor concerning licensing and certification; notification; equipment; removal and disposal procedures; engineering controls; work area preparation; decontamination and clean-up procedures; and personnel air monitoring.
- D. The contractor responsible for abatement shall be responsible for submittal of asbestos project notification(s) and applicable fees to EPA and NYSDOL concerning this project. Project notification(s) shall be made for the cumulative total of ACM to be removed as required by ICR-56-3.4. Work practices for each individual work area established shall be consistent with the quantity of ACM contained within that work area as defined in ICR-56-2.
- E. The scope of work under this contract shall include the following:
1. All asbestos-containing materials (ACM) shall be removed in accordance with these specifications. The contractor responsible for abatement is responsible for field verification of estimated quantities, locations and other site conditions that may affect work.
  2. All fixed objects remaining within the work area(s) shall be protected as required by Title 12 NYCRR Section 56-7.10(b) and as described in these specifications.
  3. The containerization, labeling and disposal of all asbestos waste in accordance with applicable city, state and federal regulations and these specifications.
  4. The contractor responsible for abatement will be responsible for repairing all building components damaged during abatement including, but not limited to, ceiling tiles, ceiling finishes, wall finishes and/or floor finishes, etc.
  5. The contractor responsible for abatement shall be responsible for any and all demolition required to access materials identified in scope of work and on associated drawings.



6. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner(s) immediately. The contractor responsible for abatement shall not abate these areas without a written notice to proceed. If the contractor responsible for abatement removes additional asbestos prior to the order to proceed the additional work will not be acknowledged.
7. Permissible working hours shall be coordinate with the CM and the building owner with one (1) hour for lunch and/or as defined by the Owner. Holidays shall be considered weekends and not included for working days. Upon written approval from the Owner, the contractor responsible for abatement may work past these hours. The contractor responsible for abatement will incur any and all costs associated for work performed beyond the defined schedule including, but not limited to: abatement activities, project/air monitoring, custodial/staffing labor, overtime, mobilizations, etc.
8. Buildings will be turned over to the contractor responsible for abatement as is. At that time, all electrical services and HVAC systems in the proposed work areas will be shut down. Electricity and water supply will be maintained in the building for use by the Abatement contractor. The contractor responsible for abatement is responsible for securing all power in the work area(s) and establishing all temporary GFCI hookups necessary to complete his work.
9. The contractor responsible for abatement shall remove identified asbestos-containing floor coverings to the building substrate beneath; in areas indicted. Subsequent to final air clearances, the substrate(s) shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.
10. The contractor responsible for abatement must coordinate location of waste containers with the Facility and the Owner. Deliveries and storage of equipment must be coordinated with the Facility and the Owner.
11. All "Large" and "Small" asbestos abatement projects, as defined by 12 NYCRR56 shall not be performed while the building is occupied. The term "building" means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exists that do not pass through the occupied portion(s) and ventilation systems must be physically separated and sealed at the isolation barriers.



**1.02 PRE-CONTRACT SUBMITTALS**

Within three (3) days after bids are opened, the three (3) apparent low bidders shall be required to submit the following documentation:

**A. Resume': Shall include the following:**

1. Provide a list of projects of similar nature performed within the past two (2) years and include the dollar value of all projects. Provide project references to include owner, consultant, and air monitoring firms' name, contact person, address, and phone number, include location of project and date of completion.
2. contractor responsible for abatement license issued by New York State Department of Labor for asbestos work in accordance with ICR-56-3.
3. A list of owned equipment available to be used in the performance of the project.
4. The number of years engaged in asbestos removal.
5. An outline of the worker training courses, and medical surveillance program conducted by the Abatement Contractor.
6. A standard operating procedures manual describing work practices and procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.
7. Documentation to the satisfaction of the Owner pertaining to the Abatement Contractor's financial resources available to perform the project. Such data shall include, but not be limited to, the firm's balance sheet for the last fiscal year.

**B. Citations/Violations/Legal Proceedings**

1. Submit a notarized statement describing any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous asbestos abatement contracts. Briefly describe the circumstances citing the project and involved persons and agencies as well as the outcome of any actions.
2. Answer the question: "Has your firm or its agents been issued a Stop Work order on any project within the last two years?" If "Yes" provide details as discussed above.
3. Answer the question: "Are you now, or have you been in the past, a party to any litigation or arbitrations arising out of your performance on Asbestos Abatement Contracts?" If "Yes" provide details as discussed in 1. above.
4. Describe any liquidated damages assessed within the last two years.

**C. Preliminary Schedule**

1. Provide a detailed schedule including work dates, work shift times, estimate of manpower to be utilized and the start and completion date for completion of each major work area.



### 1.03 DOCUMENTATION

- A. The contractor responsible for abatement shall be required to submit the following and receive the Consultant's approval prior to commencing work on this project:
1. Provide documentation of worker training for each person assigned to the project. Documentation shall include copies of each workers valid New York State asbestos handler certificates (for those employees who may perform asbestos removal), documentation of current respirator fit test and current OSHA required training and medical examination.
  2. The attached "Asbestos Employee Medical Examination Statement" and "Asbestos Employee Training Statement" forms shall be completed, signed and submitted for each worker assigned to the project. Records of all employee training and medical surveillance shall be maintained for at least forty (40) years. Copies of the records shall be submitted to the Consultant prior to commencement.
  3. The contractor responsible for abatement shall submit proof of a current, valid license issued by the New York State Department of Labor pursuant to the authority vested in the Commissioner by section 906 of the Labor Laws, and that the employees performing asbestos related work on this project are certified by the State of New York as required in Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York latest edition. Copies of all licenses shall be submitted prior to the commencement of the project.
  4. The contractor responsible for abatement shall submit a written respiratory protection program meeting the requirements of 29 CFR 1910.134 to the Consultant.
  5. The name, address, social security number and NYS DOL certificate number of the person(s) who will supervise the asbestos project.
  6. The name and address of the deposit or waste disposal site or sites where the asbestos materials are to be deposited or disposed of. This site must be approved by the Owner. The manifesting procedure must also be specified.
  7. The name, address and New York State Dept. of Environmental Conservation ID Number of any transporters that are to be used to transport waste.
  8. A written Standard Operation Procedure (SOP) that is designed and implemented to maximize protection against human exposure to asbestos dust. The SOP shall take into consideration the workers, visitors, building employees, general public and environment. As a minimum the procedures must include the following:
    - a. Security for all work areas on an around-the-clock basis against unauthorized access.
    - b. Project organization chart including the phone numbers of at least two responsible persons who shall be authorized to dispatch men and equipment to the project in the event of an emergency: including weekends.
    - c. Description of protective clothing and NIOSH approved respirators to be used.



- d. Description of all removal methods to be used, including HEPA air filtration and decontamination sequence with special emphasis on any procedure that may deviate from these specifications.
  - e. A list of manufacturers' certificates stating that all vacuums, negative air filtration equipment, respirators and air supply equipment meet OSHA and EPA requirements.
  - f. A list of all materials proposed to be furnished and used under this contract.
  - g. Emergency evacuation procedures in the event of fire, smoke or accidents such as injury from falling, heat exposure, electrical shock, etc.
  - h. The name, address and ELAP number of the New York State Department of Health Certified Analytical Testing Laboratory the Contractor proposes to use for the OSHA monitoring.
9. A detailed plan, in triplicate, for the phasing of the project, division of work areas and location of decontamination facilities, waste containers and temporary office.
10. Work schedule, identifying firm dates and completion for actual areas. Bar chart or critical path chart indicating phases is required.
- B. The contractor responsible for abatement shall post their NYS DOL contractor's license and maintain a daily log documenting the dates and time of the following items within each personal decontamination unit:
- 1. Meetings; purpose, attendants, discussion (brief)
  - 2. Sign-in and sign-out of all persons entering the work area including name, date, time, social security number, position or function and general description of daily activity.
  - 3. Testing of barriers and enclosure systems using smoke tubes prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.
  - 4. Inspection of all plastic barriers, twice daily, by the asbestos supervisor.
  - 5. Loss of enclosure integrity; special or unusual events, barrier breaches, equipment failures, etc.
  - 6. Daily cleaning of enclosures.
  - 7. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.
- C. Documentation with confirmation signature of Consultant's representative of the following shall be provided by the contractor responsible for abatement at the final closeout of the project.
- 1. Testing of barriers and enclosure systems using smoke tubes shall be performed prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.



2. Inspection of all plastic barriers.
  3. Removal of all polyethylene barriers.
  4. Consultant's inspections prior to encapsulation.
  5. Removal of waste materials.
  6. Decontamination of equipment (list items).
  7. Consultant's final inspection/final air tests.
- D. The contractor responsible for abatement shall provide records of all project information, to include the following which shall be submitted upon completion of the project and prior to approval of the Abatement Contractor's payment application:
1. The location and description of the abatement project.
  2. The name, address and social security number of the person(s) who supervised the asbestos project.
  3. Certified payroll documentation Pursuant to Article 8, Section 220 of the NYS Labor Law
  4. Copies of EPA/NYSDOL Asbestos Certificates for all Workers and Supervisors employed on the Project.
  5. Copies of Medical Approval and Respirator Fit-testing for all Asbestos Workers and Supervisors employed on the Project.
  6. Copies of Abatement Contractors Daily Sign-In Sheets & Logs for persons entering and leaving the work area. – Title 12 NYCRR Part 56-7.3.
  7. Copies of Abatement Contractor's personal air sampling laboratory results.
  8. The amounts and type of asbestos materials that was removed, enclosed, encapsulated, or disturbed.
  9. The name and address of the deposit or waste disposal site or sites where the asbestos waste materials were deposited or disposed of and all related manifests, receipts and other documentation associated with the disposal of asbestos waste.
  10. The name and address of any transporters used to transport waste and all related manifests, receipts and other documentation associated with the transport of asbestos waste.
  11. All other information that may be required by state, federal or local regulations.
  12. Copy of the Supervisor's Daily Project Log of events as described in 1.03 B, above.



## 1.04 NOTIFICATIONS AND PERMITS

A. The contractor responsible for abatement shall be required to prepare and submit notifications to the following agencies at least ten (10) days prior to the commencement of the project:

1. Asbestos NESHAPS Contact  
U.S. Environmental Protection Agency  
NESHAPS Coordinator, Air Facilities Branch  
26 Federal Plaza  
New York, New York 10007  
(212) 264-7307
2. State of New York Department of Labor  
Division of Safety and Health  
Asbestos Control Bureau  
State Office Building Campus, Building 12, Room 454  
Albany, New York 12240
3. Owner(s): Wallkill Central School District  
1500 Route 208  
Wallkill, New York 12589  
PH. (845) 895-7100  
ATTN: Brian Devincenzi
4. Owner's Representative(s): Tetra Tech Architects & Engineers  
10 Brown Road  
Ithaca, NY 14850  
Ph. (315) 440-7143  
ATTN: Timothy Thomas  
E-mail. [tim.thomas2@tetrattech.com](mailto:tim.thomas2@tetrattech.com)
5. Environmental Consultant(s): Quality Environmental Solutions & Technologies, Inc.  
(QuES&T)  
1376 Route 9  
Wappingers Falls, New York 12590  
ATTN: Larry Goldstein  
Ph. (845) 298-6031  
E-mail. [lgoldstein@qualityenv.com](mailto:lgoldstein@qualityenv.com)

B. The notification shall include but not be limited to the following information:

1. Name and address of Owner.
2. Name, address and asbestos handling license number of the Abatement Contractor.
3. Address and description of the building, including size, age, and prior use of the building or area; the amount, in square feet or linear feet of asbestos material to be removed; room designation numbers or other local information where asbestos material is found, including the type of asbestos material (friable or non-friable).
4. Scheduled starting and completion dates for removal.



5. Methods to be employed in abating asbestos containing materials.
6. Procedures and equipment, including ventilating/exhaust systems, that will be employed to comply with the Code of Federal Regulation (CFR) Title 40, Part 61 of the U.S. Environmental Protection Agency.
7. The name and address of the carting company and of the waste disposal site where the asbestos waste will be deposited.

**NOTE:** Notifications shall be submitted using standard forms as may be used by the respective agency.

For DOL (NYS) include "Asbestos Project Notification" form (DOSHS-483) with proper fee, if required. For EPA include "Notification of Demolition and Renovation"; 40 CFR Part 61.

- C. The contractor responsible for abatement shall secure any permits required by the city, town, county, or state that may be required and the cost for obtaining the permit shall be included in his base bid.
- D. The contractor responsible for abatement shall erect warning signs around the work space at every point of potential entry into the regulated work area in accordance with in accordance with 29 CFR 1926.1101(k)(7). Signs shall be posted at such a distance that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. These signs shall at minimum bear the following information:

**DANGER  
ASBESTOS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
AUTHORIZED PERSONNEL ONLY**

In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

**WEAR RESPIRATORS PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA**

- E. The contractor responsible for abatement shall post at entrances to the work place and immediate adjacent areas, notifications to building occupants, which include the name and license number of the contractor, project location and size, amount and type of ACM, abatement procedures, dates of expected occurrence and name and address of the air monitor and laboratory in compliance with ICR 56-3.6.
- F. The contractor responsible for abatement shall post a list of emergency telephone numbers at the job site which shall include the Owner's Representative, police, emergency squad, local hospital, Environmental Protection Agency, N.Y. State Department of Labor, Occupational Safety and



Health Administration and the local Department of Health.



## 1.05 APPLICABLE STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effects (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith. Resolution of overlapping and conflicting requirements, which result from the application of several different industry standards to the same unit of work, shall be by adherence to the most stringent requirement.

A. Applicable standards listed in these Specifications form a part of this Specification and include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. ANSI:  
American National Standards Institute  
1430 Broadway  
New York, New York 10018
2. ASHRAE:  
American Society for Heating, Refrigerating  
and Air Conditioning Engineers  
1791 Tullie Circle NE  
Atlanta, Georgia 30329
3. ASTM:  
American Society for Testing and Materials  
1916 Race Street  
Philadelphia, Pennsylvania 19103
4. CFR  
Code of Federal Regulations Available  
from Government Printing Office  
Washington, District of Columbia 20402
5. CGA  
Compressed Gas Association  
1235 Jefferson Davis Highway  
Arlington, Virginia 22202
6. CS  
Commercial Standard of NBS  
(US Dept. of Commerce)  
Government Printing Office
7. EPA  
Environmental Protection Agency, Region II  
26 Federal Plaza  
New York, New York 10007  
Asbestos Coordinator - Room 802  
(212) 264-9538  
Part 61, Sub-Parts A & B  
National Emission Standard for Asbestos



8. FEDERAL SPECS  
Federal Specification (General Services Administration)  
7th and D Street, SW  
Washington, District of Columbia 20406
9. NBS  
National Bureau of Standards  
(US Department of Commerce)  
Gaithersburg, Maryland 20234
10. NEC  
National Electrical Code (by NFPA)
11. NFPA  
National Fire Protection Association  
Batterymarch Park  
Quincy, Massachusetts 02269
12. NIOSH  
National Institute for Occupational Safety and Health  
26 Federal Plaza  
New York, New York 10007
13. NYSDOH  
New York State Department of Health  
Bureau of Toxic Substance Assessment  
Room 359 - 3rd Floor  
Tower Building Empire State Plaza  
Albany, New York 12237
14. NYSDEC  
New York State Department of Environmental Conservation  
Room 136  
50 Wolf Road  
Albany, New York 12233-3245
15. NYSDOL  
State of New York Department of Labor  
Division of Safety and Health  
Asbestos Control Program  
State Campus  
Building 12  
Albany, New York 12240
16. OSHA  
Occupational Safety and Health Administration  
(US Department of Labor)  
New York Regional Office - room 3445  
1515 Broadway  
New York, New York 10036



## 17. UL

Underwriters Laboratories  
333 Pfingsten Road  
Northbrook, Illinois 60062

B. Federal Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA):

- a. Asbestos Regulations  
Title 29, Part 1910, of the Code of Federal Regulations.
- b. Respiratory Protection  
Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
- c. Construction Industry  
Title 29, Part 1926, of the Code of Federal Regulations.
- d. Access to Employee Exposure & Medical Records  
Title 29, Part 1910, Section 20 of the Code of Federal Regulations.
- e. Hazard Communication  
Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.
- f. Specifications for Accident Prevention Signs and Tags  
Title 29, Part 1910, section 145 of the Code of Federal Regulations.

2. U.S. Environmental Protection Agency (EPA):

- a. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Subpart E of the Code of Federal Regulations.
- b. Worker Protection Rule  
40 CFR Part 763, Subpart G, CPTS 62044, FLR 2843-9  
Federal Register, Vol. 50, No. 134, 7/12/85, P28530-28540
- c. Regulation for Asbestos  
Title 40, Part 61, Subpart A of the Code of Federal Regulations
- d. National Emission Standard for Asbestos  
Title 40, Part 61, Subpart M (Revised Subpart B) of the Code of Federal Regulations
- e. Resource Conservation and Recovery Act (RCRA) 1976, 1980  
Hazardous and Solid Waste Amendments (HSWA) 1984  
Subtitle D, Subtitle C

3. U.S. Department of Transportation (DOT):

- a. Hazardous Substances: Final Rule Regulation 49 CFR, Part 171 and 172.



C. State Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. New York State Department of Environmental Conservation (DEC) Regulations regarding waste collection registration. Title 6, Part 364 of the New York State Official Compilation of Codes, Rules and Regulations - 6NYCRR 364.
2. New York State Right-To-Know Law
3. New York State Department of Labor Asbestos Regulations Industrial Code Rule 56.
4. New York State Department of Health, Title 10 Part 73 Asbestos safety program Requirements.

D. Standards: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. American National Standards Institute (ANSI)
  - a. Fundamentals Governing the Design and Operation of Local Exhaust Systems  
Publication Z9.2-79
  - b. Practices for Respiratory Protection  
Publication Z88.2-80

E. Guidance Documents: Those that discuss asbestos abatement work or hauling and disposal of asbestos waste materials are listed below only for the Abatement Contractor's information. These documents do not describe the work and are not a part of the work of this contract.

EPA:

1. Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book)  
EPA560/5-85-024.
2. Asbestos Waste Management Guidance EPA 530-SW-85-007.

F. Patents and Royalties: The contractor responsible for abatement shall pay all royalties and/or license fees. The contractor responsible for abatement shall defend all suits and claims for infringement of any patent rights and save the Owner and Consultant harmless from loss including attorney fees on account thereof.

## 1.06 DEFINITIONS

As used in or in connection with these specifications the following are terms and definitions.

**Abatement** - Procedure to control release from asbestos material. This includes removal, encapsulation and enclosure.

**Aggressive sampling** - A method of sampling in which the person collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.



**AIHA** - The American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311.

**Airlock** - A system for permitting entrance and exit while restricting air movement between a containment area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

**Air sampling** - The process of measuring the content of a known volume of air collected during a specific period of time.

**Amended water** - Water to which a surfactant has been added.

**Approved asbestos safety program** - A program approved by the Commissioner of Health providing training in the various disciplines that may be involved in an asbestos project.

**Area air sampling** - Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

**Asbestos** - Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cumingtonite-gunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

**Asbestos contract** - An oral or written agreement contained in one or more documents for the performance of work on an asbestos project and includes all labor, goods and service.

**Asbestos handler** - An individual who installs, removes, applies, encapsulates, or encloses asbestos or asbestos material, or who disturbs friable asbestos. Only individuals certified by NYS Department of Labor shall be acceptable for work under this specification.

**Asbestos handling certificate** - A certificate issued by the Commissioner of Labor of the State of New York, to a person who has satisfactorily completed an approved asbestos safety program.

**Asbestos project** - Work undertaken by a contractor which involves the installation, removal, encapsulation, application or enclosure of any ACM or the disturbance of friable ACM.

**Asbestos Safety Technician (AST)** - Individual designated to represent the Consultant, perform third party monitoring and perform compliance monitoring at the job site during the asbestos project.

**Asbestos waste material** - Asbestos material or asbestos contaminated objects requiring disposal.

**Authorized visitor** - The building owner, his or her representative or any representative of a regulatory or other agency having jurisdiction over the project.

**Background level monitoring** - A method used to determine ambient airborne concentrations inside and outside of a building or structure prior to starting an abatement project.



**Building owner** - The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.

**Clean room** - An uncontaminated area or room that is a part of the personal decontamination enclosure with provisions for storage of persons' street clothes and protective equipment.

**Cleanup** - The utilization of HEPA vacuuming to control and eliminate accumulations of asbestos material and asbestos waste material.

**Clearance air monitoring** - The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers upon conclusion of an asbestos abatement project.

**Commissioner** - Commissioner of the New York State Department of Labor.

**Contractor** - A company, unincorporated association, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

**Curtained doorway** - A device that consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and the left side. All sheets shall have weights attached to the bottom to insure that the sheets hang straight and maintain a seal over the doorway when not in use.

**Decontamination enclosure system** - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of persons, materials, equipment, and authorized visitors.

**Encapsulant (sealant) or encapsulating agent** - A liquid material that can be applied to asbestos material and which prevents the release of asbestos from the material by creating a membrane over the surface.

**Enclosure** - The construction of airtight walls, ceilings and floors between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, or any other appropriate procedure that prevents the release of asbestos materials.

**Equipment room** - A contaminated area or room that is part of the personal decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

**Fixed object** - A unit of equipment, furniture or other fixture in the work area which cannot be readily removed from the work area.

**Friable Asbestos Material** - That condition of crumbled, pulverized, powdered, crushed or exposed asbestos capable of being released into the air by hand pressure.

**Friable material containment** - The encapsulation or enclosure of any friable asbestos material.



**Glovebag technique** - A method for removing asbestos material from heating, ventilating, and air conditioning (HVAC) ducts, piping runs, valves, joints, elbows, and other nonplanar surfaces in a noncontained work area. The glovebag assembly is a manufactured device consisting of a glovebag constructed of at least six mil transparent plastic, two inward-projecting longsleeve gloves, which may contain an inward projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and to contain all asbestos fibers released during the abatement process.

**HEPA filter** - A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particulate greater than 0.3 microns equivalent aerodynamic diameter.

**HEPA vacuum equipment** - Vacuuming equipment with a high efficiency particulate air filtration system.

**Holding area** - A chamber in the waste decontamination enclosure located between the washroom and an adjacent uncontaminated area.

**Homogeneous work area** - A site within the abatement work area that contains one type of asbestos material and where one type of abatement is used.

**Large asbestos project** - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 160 square feet or more of asbestos or asbestos material or 260 linear feet or more of asbestos or asbestos material.

**Minor asbestos project** - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material.

**Movable object** - A unit of equipment, furniture or fixture in the work area that can be readily removed from the work area.

**Negative air pressure equipment** - A local exhaust system equipped with HEPA filtration. The system shall be capable of creating and maintaining a negative pressure differential between the outside and the inside of the work area.

**Non-asbestos material** - Any material containing one percent or less asbestos by weight.

**Occupied area** - Any frequented portion of the work site where abatement is not taking place.

**Outside air** - The air outside the building or structure.

**Personal air monitoring** - A method used to determine an individual's exposure to airborne contaminants. The sample is collected outside the respirator in the person's breathing zone.

**Plasticize** - To cover floors, walls, ceilings and other surfaces with 6 mil fire retardant plastic sheeting as herein specified.

**Project** - Any form of work performed in connection with the abatement of asbestos or alteration, renovation, modification or demolition of a building or structure that may disturb asbestos or asbestos material.



**Removal** - The stripping of any asbestos material.

**Repair** - Corrective action using required work practices to control fiber release from damaged areas.

**Respiratory protection** - Respiratory protection required of licensed asbestos workers and authorized visitors in accordance with the applicable laws.

**Satisfactory clearance air monitoring results** - For all post- abatement samples, airborne concentrations of total fibers that are less than 0.01 fibers per cubic centimeter or background levels, whichever are greater, using phase contrast microscopy (PCM).

**Shower room** - A room between the clean room and the equipment room in the personal decontamination enclosure with hot and cold running water controllable at the top and arranged for complete showering during decontamination.

**Small asbestos project** - An asbestos project involving the installation, removal, disturbances, enclosure, or encapsulation of more than 10 and less than 160 square feet of asbestos or asbestos material of more than 25 and less than 260 linear feet of asbestos or asbestos material.

**Staging area** - The area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

**Surfactant** - A chemical wetting agent added to water to improve its penetration.

**Visible emissions** - An emissions of particulate material that can be seen without the aid of instruments.

**Washroom** - A room between the work area and the holding area in the waste decontamination enclosure system, where equipment and waste containers are wet cleaned and/or HEPA vacuumed.

**Waste decontamination enclosure system** - An area, consisting of a washroom and a holding area, designated for the controlled transfer of materials and equipment.

**Wet cleaning** - The process of eliminating asbestos contamination from surfaces, equipment or other objects by using cloths, mops, or other cleaning tools.

**Work area** - Designated rooms, spaces, or areas where asbestos abatement takes place.

**Work site** - Premises where asbestos abatement is taking place.

**Work Surface** - Substrate surface from which asbestos-containing material has been removed.

## **1.07 UTILITIES, SERVICE AND TEMPORARY FACILITIES**

- A. The Owner shall make available to the contractor responsible for abatement all reasonable amounts of water and electrical power at no charge.



- B. The contractor responsible for abatement shall provide, at his own expense, all electrical, water, and waste connections, extensions, and construction materials, supplies, etc. All connections must be approved in advance by the Owner and all work relative to the utilities must be in accordance with the applicable building codes.
- C. The contractor responsible for abatement shall provide scaffolding, ladders and staging, etc. as necessary to accomplish the work of this contract. The type, erection and use of all scaffolding, ladders and staging, etc. shall comply with all applicable OSHA provisions.
- D. All connections to the Owner's water system shall include reduced pressure backflow protection or double check and double gate valves. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.
- E. The contractor responsible for abatement shall use only heavy duty abrasion resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water to each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment. All water must be shut off at the end of each shift.
- F. The contractor responsible for abatement shall provide service to decontamination unit electrical subpanel with minimum 60 amp, 2 pole circuit breaker or fused disconnect and ground-fault circuit interrupters (GFCI), reset button and pilot light, connected to the building's main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. This electrical subpanel shall be used for hot water heater, PAPR battery recharging and air sampling pumps.
- G. The contractor responsible for abatement shall provide UL rated 40-gallon electric hot water heater to supply hot water for the decontamination unit shower. Activate from 30 amp circuit breaker on the electrical subpanel located within the decontamination unit. Provide with relief valve compatible with water heater operation; relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall be in compliance with NEMA, NEC, and UL standards.
- H. The contractor responsible for abatement shall provide identification warning signs at power outlets, which are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 plugs into higher voltage outlets. Dry transformers shall be provided where required to provide voltages necessary for work operations. All outlets or power supplies shall be protected by ground fault circuit interrupter (GFCI) at the power source.
- I. The contractor responsible for abatement shall use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.
- J. The contractor responsible for abatement shall provide general service incandescent lamps of wattage indicated or required for adequate illumination; Protect lamps with guard cages or tempered glass enclosures; Provide exterior fixtures where fixtures are exposed to moisture.



- K. The contractor responsible for abatement shall provide temporary heat or air conditioning as necessary to maintain comfortable working temperatures inside and immediately outside the work areas. Heating and A/C equipment shall have been tested and labeled by UL, FM or another recognized trade association related to the fuel being used. Fuel burning heaters shall not be used inside containment areas. The Contractor shall also provide a comfortable working environment for occupied areas that are impacted by the asbestos removal.
- L. The contractor responsible for abatement shall comply with recommendations of the NFPA standard in regard to the use and application of fire extinguishers. Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher in each work area, equipment room, clean room and outside the work area.

## **1.08 REMOVAL OF FIXTURES**

- A. In locations where the contractor responsible for abatement is directed to dispose of fixtures he shall either decontaminate the fixtures and dispose of them as non-asbestos containing materials or he shall place them in an appropriate container and dispose of them as asbestos containing material.
- B. In locations where the contractor responsible for abatement is directed to remove and reinstall fixtures, the fixtures shall be removed, decontaminated, labeled, protected with plastic and stored by the contractor in a location as directed by the Owner.
- C. Upon completion of the asbestos removal and upon receiving satisfactory clearance air monitoring results, all items to be replaced shall be restored to their original location and reinstalled by the contractor responsible for abatement.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS AND EQUIPMENT**

#### **A. GENERAL REQUIREMENTS**

- 1. Materials shall be stored off the ground, away from wet or damp surfaces and under protective cover to prevent damage or contamination.
- 2. Damaged or deteriorating materials shall not be used and shall be removed from the premises.
- 3. Power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.
- 4. The contractor responsible for abatement shall make available to authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached for inspection. Scaffold joints and ends shall be sealed with tape to prevent incursion of asbestos. Scaffolds and ladders shall comply with all applicable codes.

#### **B. PLASTIC BARRIERS (POLYETHYLENE)**

- 1. In sizes and shapes to minimize the number of joints.



- a. Six mil. (.006") fire-retardant for vertical protection (walls, entrances and openings).
  - b. Six mil. (.006") fire-retardant for horizontal protection (fixed equipment) and heating grilles.
  - c. Six mil. (.006") reinforced fire-retardant for floors of decon units.
2. Provide two (2) layers over all roof, wall and ceiling openings. Floor penetrations shall be sealed with a rigid material prior to plasticizing to prevent tripping and fall hazards. All seams within a layer shall be separated by a minimum distance of six feet and sealed airtight. All seams between layers shall be staggered.
  3. Barrier Attachment - Commercially available duct tape (fabric or paper) and spray-on adhesive. Duct tape shall be capable of sealing joints of adjacent sheets of plastic, facilitating attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions.

#### C. SIGNS

1. Danger signs shall be provided and shall conform to the requirements of 29 CFR 1910.1101(k)(7) and shall comply with the requirements of ANSI Z535.2 2011 and shall be a minimum of 14" x 20". These signs shall bear the following information:

**DANGER  
ASBESTOS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
AUTHORIZED PERSONEL ONLY**

In addition, where the use of respirators and protective clothing is required in the regulated area the warning sign shall include the following as a minimum:

**WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA**

#### D. DANGER LABELS & TAPE

1. Labels shall be affixed to any asbestos contaminated material in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communication Standard, and shall contain at a minimum the following information:

**DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST**



2. A label shall be affixed to each container of asbestos waste in accordance with the requirements of 49 CFR Parts 171 and 172, Hazardous Substances; Final Rule (U.S. Department of Transportation), and shall at a minimum contain the following information:

**RQ ASBESTOS  
SOLID, NOS, ORM-E, NA 9-NA 2212-PG III  
(ASBESTOS)**

#### E. SIGNS

2. Danger signs shall be provided and shall conform to the requirements of 29 CFR 1910.1101(k)(7) and shall comply with the requirements of ANSI Z535.2 2011 and shall be a minimum of 14" x 20". These signs shall bear the following information:

**DANGER  
ASBESTOS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
AUTHORIZED PERSONEL ONLY**

In addition, where the use of respirators and protective clothing is required in the regulated area the warning sign shall include the following as a minimum:

**WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA**

#### F. DANGER LABELS & TAPE

3. Labels shall be affixed to any asbestos contaminated material in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communication Standard, and shall contain at a minimum the following information:

**DANGER  
CONTAINS ASBESTOS FIBERS  
MAY CAUSE CANCER  
CAUSES DAMAGE TO LUNGS  
DO NOT BREATHE DUST  
AVOID CREATING DUST**



4. A label shall be affixed to each container of asbestos waste in accordance with the requirements of 49 CFR Parts 171 and 172, Hazardous Substances; Final Rule (U.S. Department of Transportation), and shall at a minimum contain the following information:

**RQ ASBESTOS  
SOLID, NOS, ORM-E, NA 9-NA 2212-PG III  
(ASBESTOS)**

#### G. PROTECTIVE EQUIPMENT

##### 1. Respiratory Requirements

- a. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators are the minimum allowable respiratory protection permitted to be utilized during removal operations.
- b. Where not in violation of NIOSH, OSHA, and any other regulatory requirements, the contractor responsible for abatement shall provide the following minimum respiratory protection to the maximum use concentrations indicated:

<u>MSHA/NIOSH Approved Respiratory Protection</u>	<u>Maximum Use Concentration</u>
Half-Mask Air Purifying with HEPA Filters	10x PEL
Full-Facepiece Air Purifying HEPA Filters and Quantitative Fit Test	10x PEL
Powered Air Purifying (PAPR), Loose fitting Helmet or Hood, HEPA Filter	25x PEL
Powered Air Purifying (PAPR), Full Facepiece, HEPA Filter	50x PEL
Supplied Air, Continuous Flow Loose fitting Helmet or Hood	25x PEL
Supplied Air, Continuous Flow Full Facepiece, HEPA Filter	50x PEL
Full Facepiece-Supplied Air Pressure Demand, HEPA Filter	100x PEL
Full Facepiece-Supplied Air	>100x PEL



Pressure Demand, with Aux. SCBA,  
Pressure Demand or Continuous Flow

2. Disposable Clothing - "Tyvek" manufactured by Dupont or approved equal.
3. NIOSH approved safety goggles to protect eyes.
4. Polyethylene bags, 6 mil. (.006") thick (use double bags).

NOTE: Workers must wear disposable coveralls and respirator masks at all times while in the work area. Contaminated coveralls or equipment must be left in work area and not worn into other parts of the building.

#### H. TOOLS AND EQUIPMENT

1. Airless Sprayer - An airless sprayer, suitable for application of encapsulating material, shall be used.
2. Scaffolding - Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.
3. Transportation Equipment - Transportation equipment, as required, shall be suitable for loading, temporary storage, transport and unloading of contaminated waste without exposure to persons or property. Water tight, hard wall containers shall be provided to retain and dispose of any asbestos waste material with sharp-edged components that may tear plastic bags or sheeting. The containers shall be marked with danger labels.
4. Surfactant - Wetting Agents - "Asbestos-Wet" - Aquatrols Corp. of America or approved equal, and shall be non- carcinogenic.
5. Portable (negative air pressure) asbestos filtration system - by Micro-Trap, or approved equal.
6. Vacuum, HEPA type equal to "Nilfisk" #GA73, or "Pullman/Holt" #75 ASA.
7. Amended Water Sprayer - The water sprayer shall be an airless or other low-pressure sprayer for amended water application.
8. Other Tools and Equipment - The contractor responsible for abatement shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, nylon brushes, sponges, rounded edge shovels, brooms, and carts.

### **PART 3 – EXECUTION**

#### **3.01 PRE-ABATEMENT WORK AREA PREPARATION**

- A. The work area shall be vacated by the occupants prior to work area preparation and not reoccupied until satisfactory clearance air monitoring results have been achieved.
- B. Caution signs shall be posted at all locations and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted that permit a person to read the sign and take the necessary protective measures to avoid exposure.



- C. Shut down and lock out electric power to all work areas. The contractor responsible for abatement shall provide temporary power and lighting and ensure safe installation of temporary power sources and equipment used where high humidity and/or water shall be sprayed in accordance with all applicable codes. All power to work areas shall be brought in from outside the area through a ground-fault interrupter at the source.
- D. Isolate the work area HVAC system.
- E. The personnel decontamination enclosure system shall be installed or constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material. The waste decontamination enclosure system shall be installed or constructed prior to commencement of abatement activities.
- F. Movable objects within the work area shall be pre-cleaned using HEPA filtered vacuum equipment an/or wet cleaning and such objects shall be removed from the work area to an uncontaminated location. If disposed of as asbestos waste material, cleaning is not required.
- G. Fixed objects and other items, which are to remain within the work area, shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Such objects shall be enclosed with two layers of at least six mil plastic sheeting and sealed with tape.
- H. The work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall be prohibited. Asbestos material shall not be disturbed during pre-cleaning.
- I. Isolation barriers that seal off all openings, including windows, corridors, doorways, ducts, and any other penetrations of the work area, shall be constructed using two layers of at least six mil fire-retardant plastic sheeting sealed with tape. Also, all seams in mechanical system components that pass through the work area shall be sealed. Doorways and corridors, which shall not be used for passage during work, shall also be sealed.
- J. Removal of mounted objects. After isolation barriers are in place, objects such as light fixtures, electrical track, alarm systems, ventilation equipment and other items not previously sealed, shall be double sealed with six mil fire-retardant plastic sheeting. Localized HEPA filtered vacuum equipment shall be used during fixture removal to reduce asbestos dispersal.
- K. Individual roof and floor drains shall be sealed watertight using two layers of 6-mil fire-retardant plastic sheeting and tape prior to plasticizing. Openings in floor shall be fully covered with plywood sheeting secured to the floor in such a way as to minimize a tripping hazard prior to plasticizing.
- L. Emergency and fire exits from the work area shall be maintained or alternate exits shall be established according to all applicable codes.
- M. Adequate toilet facilities shall be supplied by the contractor responsible for abatement and shall be located either in the clean area of the personnel decontamination enclosure or shall be readily accessible to the personnel decontamination enclosure.



### **3.02 LARGE ASBESTOS PROJECT PERSONNEL DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)**

- A. The personnel decontamination enclosure shall be constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material.
1. Construction and use of personnel decontamination enclosure systems shall be in accordance with ICR-56 and any Applicable or Site Specific Variances utilized on this project. Such systems may consist of existing rooms outside of the work area, if the layout is appropriate, that can be enclosed is plastic sheeting and are accessible from the work area. When this situation does not exist, enclosure systems may be constructed out of metal, wood or plastic support.
  2. The personnel decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other and from the work area by three airlocks.
  3. There shall be one shower per six full shift abatement persons calculated on the basis of the largest shift.
  4. The personnel decontamination enclosure system shall be fully framed, sheathed for safety and constructed to prevent unauthorized entry.
  5. Personnel decontamination enclosure systems constructed at the work site shall utilize at least six mil fire-retardant opaque plastic sheeting. At least two layers of six mil fire-retardant reinforced plastic sheeting shall be used for the flooring of this area.
  6. All prefabricated decontamination units shall be completely decontaminated and sealed prior to separation and removal from the work area. Mobile decontamination units shall remain in place until satisfactory clearance results have been attained.
  7. The clean room shall be sized to accommodate all authorized persons. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall also be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for the storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the work area or enclosure. It shall be used to secure the work area and decontamination enclosure during off-shift hours.
  8. The shower room shall contain one or more showers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste. The shower room shall be constructed in such way that travel through the decontamination unit shall be through the shower.



9. The equipment room shall be used for the storage of equipment and tools after decontamination using a HEPA filtered vacuum and/or wet cleaning. A one day supply of replacement filters, in sealed containers, for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A walk-off pan filled with water shall be located in the work area just outside the equipment room for persons to clean foot covering when leaving the work area. A drum lined with a labeled, at least six mil plastic bag is required for collection of clothing and shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

### **3.03 WASTE DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)**

#### **A. General Requirements**

1. A waste decontamination enclosure system shall consist of the following:
  - a. A washroom/cleanup room shall be constructed with an airlock doorway to the work area and another airlock doorway to the holding area.
  - b. The holding area shall be constructed with an airlock doorway to the washroom/cleanup room and another lockable door to the outside.
2. Where there is only one egress from the work area, the holding area of the waste decontamination enclosure system may branch off from the equipment decontamination room, which doubles as a waste washroom, of the personnel decontamination enclosure.
3. The waste washroom shall be equipped with a drain installed to collect water and deliver it to the shower drain where it shall be filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.
4. The waste washroom shall be constructed in such a way that travel through the rooms shall be through the waste washroom

### **3.04 WORK AREA ENTRY AND EXIT PROCEDURES**

- A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved:
  1. All persons shall enter and exit the work area through the personnel decontamination enclosure system.
  2. All persons who enter the work area or an enclosure shall sign the entry/exit log, located in the clean room, upon every entry and exit.



3. All persons, before entering the work area, or an enclosure shall read and be familiar with all posted regulations, personal protection requirements, including work area entry and exit procedures, and emergency procedures. The entry/exit log headings shall indicate, and the signatures shall be used to acknowledge, that these have been reviewed and understood by all persons prior to entry.
4. All persons shall proceed first to the clean room, remove all street clothing, store these items in clean sealable plastic bags or lockers and don coveralls, head covering, foot covering and gloves. All persons shall also don NIOSH approved respiratory protection. Clean respirators and protective clothing shall be utilized, by each person, for each separate entry into the work area. Respirators shall be inspected prior to each use and tested for proper seal using quantitative or qualitative fit checks.
5. Persons wearing designated personal protective equipment shall proceed from the clean room through the shower room to the equipment room, where necessary tools are collected and any additional clothing shall be donned, before entry into the work area.
6. Before leaving the work area, all persons shall remove gross contamination from the outside of respirators and protective clothing by brushing, wet cleaning, and/or HEPA vacuuming.
7. Persons shall proceed to the equipment room where all coveralls, head covering, foot covering and gloves shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, head gear and gloves shall be stored in the equipment room when not being used in the work area.
8. Still wearing respirators, persons shall proceed to the shower area, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water. Some types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection shall be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator facepiece shall be disconnected from the filter/power pack assembly prior to entering the shower.
9. After showering and drying, all persons shall proceed to the clean room and don clean personal protective equipment if returning to the work area or street clothing if exiting the enclosure.

### **3.05 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION & REMOVAL PROCEDURES**

- A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved.
  1. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. These work area persons shall not enter the airlock.



2. These contaminated items shall be removed from the airlock by persons stationed in the washroom during waste removal operations. These washroom persons shall remove gross contamination from the exterior of their respirators and protective clothing by brushing, HEPA vacuuming and/or wet cleaning.
3. Once in the waste decontamination enclosure system, external surfaces of contaminated containers and equipment shall be cleaned a second time by wet cleaning.
4. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting and sealed airtight.
5. The clean recontainerized items shall be moved into the airlock that leads to the holding area. The washroom persons shall not enter this airlock or the work area until waste removal is finished for that period.
6. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from uncontaminated areas.
7. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.
8. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.
9. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.
10. Containers labeled with Asbestos hazard warnings shall not be used to dispose of non asbestos waste.

### **3.06 ENGINEERING CONTROLS**

#### **A. Ventilation.**

1. The contractor responsible for abatement shall employ HEPA equipped vacuums or negative air pressure equipment for ventilation as required.
2. All negative air pressure equipment ventilation units shall be equipped with HEPA filtration. The Contractor shall provide a manufacturer's test certificate for each unit documenting the capability of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns equivalent aerodynamic diameter.
3. A power supply shall be available to satisfy the requirements of the total of all ventilating units.
4. On electric power failure, abatement shall stop immediately and shall not resume until power is restored and exhaust units are operating fully. On extended power failure, longer than one hour, the decontamination facilities, after the evacuation of all persons from the work area, shall be sealed airtight.



5. If extending the exhaust of the ventilation units 50 feet from the building would result in an exhaust location either in the road, blocking driveway access to the facility or within 50 feet of other buildings, a second unit will be run in series with the primary unit.

### **3.07 MAINTENANCE OF DECONTAMINATION ENCLOSURE SYSTEMS AND WORK AREA BARRIERS**

#### **A. GENERAL REQUIREMENTS**

1. The Consultant must review and approve installation before commencement of work. Upon completion of the construction of all plastic barriers and decontamination system enclosures and prior to beginning actual abatement activities.
2. All plastic barriers inside the work area, in the personnel decontamination enclosure system, in the waste decontamination enclosure system and at partitions constructed to isolate the work area from occupied areas, shall be inspected by the asbestos supervisor at least twice daily. The barriers shall be inspected before the start of and following the completion of the day's abatement activities. Inspections and observations shall be documented in the project log.
3. Damage and defects in the barriers and/or enclosure systems shall be repaired immediately upon discovery and prior to resumption of abatement activities.
4. At any time during the abatement activities, if visible emissions are observed outside of the work area or if damage occurs to the barriers, work shall be stopped, repairs made and visible residue immediately cleaned up using HEPA vacuuming methods prior to the resumption of abatement activities.
5. The contractor responsible for abatement shall HEPA vacuum and/or wet clean the waste decontamination enclosure system and the personnel decontamination enclosure system at the end of each day of abatement activities.

### **3.08 HANDLING AND REMOVAL PROCEDURES**

The contractor responsible for abatement may utilize existing provisions of ICR-56, Applicable Variances or a Site Specific Variance, approved by the Owner's Consultant, to permit the conduct of this work.

### **3.09 ABATEMENT PROCEDURES**

#### **A. AIR SAMPLING - By Owner**

1. Air sampling and analysis shall be conducted according to the requirements of Subpart 56-4 before the start, during and after the completion of the asbestos removal project.
2. In addition to the requirements of Subpart 56-4, air monitoring shall be conducted in accordance with any approved job specific variance(s) or applicable variance utilized.
3. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.
4. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56.



and 40 CFR 763.90[i].

- B. The provisions of the Applicable Variances or a Job Specific Variance shall apply only in those areas where approval has been granted by the NYS DOL and the Contractor has obtained concurrence from the Owner's Consultant. All other applicable provisions of Industrial Code Rule 56-1 through 56-12 shall be complied.
- C. A copy of the NYS DOL Job Specific or Applicable Variance, if applicable, shall be conspicuously posted at the work area(s).
- D. The abatement contractor shall construct a decontamination unit at the work site. The abatement contractor shall, as a minimum, comply with the requirements of 29 CFR 1926.1101(j); Hygiene facilities and practices for employees.

### **3.10 ENCAPSULATION PROCEDURES**

The following procedures shall be followed to seal in non-visible residue, after obtaining satisfactory clearance air monitoring results, while conducting lockdown encapsulation on any surfaces which were the subject of removal or other remediation activities:

- A. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA contract shall be used for lockdown encapsulation.
- B. Sealants considered for use in encapsulation shall first be tested to ensure that the sealant is adequate for its intended use. A section of the work surface shall be evaluated following this initial test application of the sealant to quantitatively determine the sealant's effectiveness in terms of penetrating and locking down the asbestos fibers. The American Society of Testing and Materials (ASTM) Committee E06.21.06E on Encapsulation of Building Materials has developed a guidance document to assist in the selection of an encapsulant.
- C. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon.
- D. Encapsulants shall be applied using airless spray equipment.
  - 1. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.
- E. Encapsulation shall be utilized as a surface sealant once all asbestos containing materials have been removed in a work area. In no event shall encapsulant be applied to any surface that was the subject of removal or other remediation activities prior to obtaining satisfactory clearance air monitoring.

### **3.11 CLEANUP PROCEDURES**

- A. The following cleanup procedures shall be required.
  - 1. Cleanup of accumulations of loose asbestos material shall be performed whenever enough loose asbestos materials have been removed to fill a single leak tight container of the type commensurate with the material properties. In no case shall cleanup be performed less than once prior to the close of each working day. Asbestos material shall be kept wet until cleaned up.



2. Accumulations of dust shall be cleaned off all surfaces on a daily basis using HEPA vacuum cleaning methods.
3. Decontamination enclosures shall be HEPA vacuumed at the end of each shift.
4. Accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pans, squeegees or shovels. Metal shovels shall not be used to pick up or move waste.
5. Excessive water accumulation or flooding in the area shall require work to stop until the water is collected and disposed of properly.

B. The following cleanup procedures shall be required after completion of all removal activities.

1. All accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pan, squeegees or shovels. Metal shovels shall not be used to pick up or move waste. HEPA vacuums shall be used to clean all surfaces after gross cleanup.
2. Cleaning. All surfaces in the work area shall be HEPA vacuumed. To pick up excess liquid and wet debris, a wet purpose shop vacuum may be used and shall be decontaminated prior to removal from the work area.
3. Windows, doors, HVAC system vents and all other openings shall remain sealed. Decontamination enclosure systems shall remain in place and be utilized.
4. All containerized waste shall be removed from the work area and the holding area.
5. All tools and equipment shall be decontaminated and removed from the work area.
6. A final visual inspection and clearance air monitoring, as per the schedule for air sampling and analysis, shall be conducted.
7. The isolation barriers and decontamination unit shall be removed only after satisfactory clearance air monitoring results have been achieved.

### **3.12 SAFETY MONITORING – CONSULTANT:**

The Consultant will designate an Asbestos Safety Technician (AST) to represent the Owner during the removal program. The AST must be on the job site at all times during abatement work. Absolutely no abatement or preparation work will occur without the presence of the AST.

The AST will conduct four (4) milestone inspections.

1. Pre-commencement inspection shall be conducted as follows:
  - a. Notification in writing to the Consultant shall be made by the Contractor responsible for abatement to request a pre-commencement inspection at least 48 hours in advance of the desired date of inspection. This inspection shall be requested prior to beginning preparatory work in another work area.



- b. The AST shall ensure that:
  - i. The job site is properly prepared and that all containment measures are in place;
  - ii. The designated supervisor shall present to the inspector a valid supervisor's license issued by the New York Department of Labor;
  - iii. All workers shall present to the inspector a valid handler's license issued by the New York Department of Labor;
  - iv. Measures for the disposal of removed asbestos material are in place and shall conform to the adopted standards;
  - v. The contractor responsible for abatement has a list of emergency telephone numbers at the job site which shall include the monitoring firm employed by the Owner and telephone numbers for fire, police, emergency squad, local hospital and health officer.
- c. If all is in order, the AST shall issue a written notice to proceed in the field. If the job site is not in order, then any needed corrective action must be taken before any work is to commence. Conditional approvals shall not be granted.

Progress inspection shall be conducted as follows:

- a. Primary responsibility for ensuring that the abatement work progresses in accordance with these technical specifications and regulatory requirements rests with the Abatement Contractor. The AST shall continuously be present to observe the progress of work and perform required tests.
- b. If the AST observes irregularities at any time, he shall direct such corrective action as may be necessary. If the abatement contractor fails to take the corrective action required, or if the contractor responsible for abatement or any of their employees habitually and/or excessively violate the requirements of any regulation, then the AST shall inform the Owner who shall issue a Stop Work Order to the contractor responsible for abatement and have the work site secured until all violations are abated.

Clean-up inspections shall be conducted as follows:

- a. Notice for clean-up inspection shall be requested by the abatement contractor at least 24 hours in advance of the desired date of inspection;
- b. The clean-up inspection shall be conducted prior to the removal of any isolation or critical barriers and before final air clearance monitoring;
- c. The AST shall ensure that:
  - i. The work site has been properly cleaned and is free of visible asbestos containing material and debris.



- ii. All removed asbestos has been properly placed in a locked secure container outside of the work area.
- d. If all is in order, the AST shall issue a written notice of authorization to remove surface barriers from the work area. All isolation barriers shall remain in place until satisfactory clearance air sampling has been completed.
- 4. Clearance Visual Inspection shall be conducted after the removal of non-critical plastic sheeting. The AST shall insure that:
  - a. The work area is free of all visible asbestos or suspect asbestos debris and residue.
  - b. All waste has been properly bagged and removed from the work area.
  - c. Should clearance visual inspection identify residual debris, as determined by the AST, the contractor responsible for abatement is responsible for recleaning the area at his own cost and shall bear all costs of reinspection until acceptable levels are achieved.
- B. The contractor responsible for abatement shall be required to receive written approval before proceeding after each milestone inspection.

### **3.13 PERSONNEL AIR MONITORING – CONTRACTOR (29 CFR 1926.1101)**

- A. Personnel air monitoring shall be provided to determine both short-term (STEL) and full shift during when abatement activities occur. Personnel sampling shall be performed in each work area in order to accurately determine the concentrations of airborne asbestos to which workers may be exposed.
- B. The abatement contractor shall have a qualified "Competent Person" (as specified in 29 CFR 1926 OSHA) to conduct personnel air monitoring.
- C. The laboratory performing the air sample analysis shall be certified by NYS DOH ELAP and approved by the consultant.
- D. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

### **3.14 CLEARANCE AIR MONITORING**

- A. Air samples will be collected in and around the work areas at the completion of abatement activities.
- B. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.
- C. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR part 763 "Asbestos-Containing Materials in Schools; Final Rule and Notice" section 763.90.



**D. \*\*\*RETESTING\*\*\***

Should clearance air monitoring yield fiber concentrations above the “Clearance” criteria of either 0.01 fibers per CC and/or background levels (PCM) –OR- seventy (70) structures per square millimeter (TEM/AHERA), the abatement contractor is responsible for re-cleaning the area at his own cost and shall bear all costs associated with the retesting of the work area(s) including monitoring labor, sampling, analysis, etc. until such levels are achieved.

**3.15 RESPIRATORY PROTECTION REQUIREMENT**

- A. Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with these specifications.
- B. All respiratory protection shall be MSHA/NIOSH approved in accordance with the provisions of 30 CFR Part II. All respiratory protection shall be provided by the Abatement Contractor, and used by workers in conjunction with the written respiratory protection program.
- C. The contractor responsible for abatement shall provide respirators that meet the requirements of 29 CFR Parts 1910 and 1926.
  1. Full facepiece Type C supplied-air respirators operated in pressure demand mode equipped with an auxiliary self- contained breathing apparatus, operated in pressure demand or continuous flow, shall be worn during gross removal, demolition, renovation and/or other disturbance of ACM whenever airborne fiber concentrations inside the work area are greater than 10.0 f/cc.
  2. Full facepiece Type C supplied-air respirators operated in pressure demand mode with HEPA filter disconnect protection shall be work during gross removal, demolition, renovation and/or other disturbance of ACM with an amphibole content and/or whenever airborne fiber concentrations inside the work area are equal to or greater than 0.5 f/cc and less than or equal to 10.0 f/cc.
  3. Full facepiece powered air-purifying respirators (PAPR) equipped with HEPA filters shall be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.5 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow, with HEPA filter disconnect protection, may be substituted for a powered air-purifying respirator.
  4. Loose fitting helmets or hoods with powered air-purifying respirators (PAPR) equipped with HEPA filters may be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.25 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow may be substituted for a powered air- purifying respirator.



5. Half-mask or full-face air-purifying respirators with HEPA filters shall be worn only during the preparation of the work area and final clean up procedures provided airborne fiber concentrations inside the work area are less than 0.1 f/cc.
  6. Use of single use dust respirators is prohibited for the above respiratory protection.
- D. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.
  - E. The contractor responsible for abatement shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every six months thereafter with the type of respirator he/she will be using.
  - F. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.
  - G. No facial hair, which interferes with the face-to-mask sealing surface, shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.
  - H. Contact lenses shall not be worn in conjunction with respiratory protection.
  - I. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the contractor responsible for abatement at the Abatement Contractor's expense.
  - J. Respiratory protection maintenance and decontamination procedures shall meet the following requirement:
    1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134(b); and
    2. HEPA filters for negative pressure respirators shall be changed after each shower; and
    3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures; and
    4. Airline respirators with HEPA filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator facepieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers' recommendations; and
    5. Respirators shall be stored in a dry place and in such a manner that the facepiece and exhalation valves are not distorted; and
    6. Organic solvents shall not be used for washing of respirators.
  - K. No visitors shall be allowed to enter the contaminated area if they do not have their medical



certification and training certificate. Authorized visitors shall be provided with suitable PAPR respirators and instructions on the proper use of respirators whenever entering the work area.

### **3.16 DISPOSAL OF WASTE**

#### **A. APPLICABLE REGULATIONS**

1. All asbestos waste shall be stored, transported and disposed of as per, but not limited to, the following Regulations:
  - a. NYS Code Rule 56
  - b. U.S. Department of Transportation (DOT)  
Hazardous Substances  
Title 29, Part 171 and 172 of the code of Federal Regulations  
regarding waste collector registration
  - c. Regulations regarding waste collector registration Title 6, part 364 of the New York State Official Compilation of Codes, Rules and Regulations – 6 NYCRR 364
  - d. USEPA NESHAPS 40 CRF 61
  - e. USEPA ASBESTOS WASTE MANAGEMENT GUIDANCE EPA/530-SW-85-007

#### **B. TRANSPORTER OR HAULER - The contractor responsible for abatement shall bear full responsibility for proper characterization, transportation and disposal of all solid or liquid waste, generated during the project, in a legal manner. The Owner shall approve all transportation and disposal methods.**

1. The Abatement Contractor's Transporter (hauler) and disposal site shall be approved by the Owner. The contractor responsible for abatement shall remove within 48 hours all asbestos waste from the site after completing the clean up.
2. The Transporter must possess and present to the Owner's representative a valid New York State Department of Environmental Conservation Part 364 asbestos hauler's permit to verify license plate and permit numbers. The Owner's representative will verify the authenticity of the hauler's permit with the proper authority.
3. The contractor responsible for abatement shall give 24 hour notification prior to removing any waste from the site. All waste shall be removed from site only during normal working hours. No waste may be taken from the site without authorization from the Owner's representative.
4. The contractor responsible for abatement shall have the Transporter give the date and time of arrival at the disposal site.
5. The Transporter with the contractor responsible for abatement and Owner's consultant shall inspect all material in the transport container prior to taking possession and signing the Waste Manifest. The Transporter shall not have any off site transfers or be combined with any other off-site asbestos material.
6. The Transporter must travel directly to the disposal site with no unauthorized stops.



### C. WASTE STORAGE CONTAINER

1. During loading and on site storage, the asbestos waste container shall be labeled with EPA Danger signage:

**DANGER**  
**CONTAINS ASBESTOS FIBERS**  
**AVOID CREATING DUST**  
**CANCER AND LUNG DISEASE HAZARD**

2. The NYS DEC Hauler's Permit number shall be on both sides and back of the container.
3. The Container will not be permitted to leave the site without the proper signage.
4. A copy of the completed waste manifest shall be forwarded directly to the Owner's Consultant by the disposal facility.
5. Packaging of Non-friable Asbestos. Use of an open top container shall require written request, by the Contractor, and written approval by the Owners Representative, and be performed in compliance with all applicable regulations.
  - a) A chute, if used, shall be air/dust tight along its lateral perimeter and at the terminal connection to the dumpster at ground level (solid wall and top container). The upper end of the chute shall be furnished with a hinged lid, to be closed when the chute is not being used.
  - b) The container shall be lined with a minimum of two (2) layers of 6 mil. Fire-retardant polyethylene draped loosely over the sides so as to facilitate being wrapped over the top of the load and sealed prior to transport from the site.
  - c) Prior to transport from the work site the Dumpster will be disconnected from the chute and sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.
6. Packaging Friable Asbestos.
  - a) The container shall be a solid wall, hard top and lockable container.
  - b) The container shall be locked upon arrival at the site to restrict access. Security shall be provided at the entrance to the container during the loading process and immediately locked upon completion.
  - c) The interior walls, floor and ceiling shall be lined with two (2) layers of 6 mil. Fire-retardant polyethylene.
  - d) The waste shall be loaded in such a manner as to protect the integrity of the individual waste packages.
  - e) Prior to transport from the work site the interior of the Dumpster will sealed air/dust tight



utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

#### D. WASTE DISPOSAL MANIFEST

1. The Asbestos Waste Manifest shall be equivalent to the "Waste Shipment Record" included in 40 CFR 61. A copy of the Contractor's manifest shall be reviewed by the Owner's Consultant and shall be the only manifest used.
2. The Manifest shall be verified by the Owner's Consultant indicating that all the information and amounts are accurate and the proper signatures are in place.
3. The Manifest shall have the signatures of the contractor responsible for abatement and the Transporter prior to any waste being removed from the site.
4. The Manifest shall be signed by the Disposal Facility owner or operator to certify receipt of asbestos containing materials covered by the manifest.
5. A copy of the completed manifest shall be provided by the contractor responsible for abatement to the Owner's Consultant and remain on site for inspection.
6. Contractor responsible for abatement shall maintain a waste disposal log which indicates load number, date and time left site, container size, type of waste, quantity of waste, name of hauler, NYS DES permit number, trailer and tractor license number, and date manifest was returned to consultant.
7. The Disposal Facility owner or operator shall return a signed copy of the Waste Manifest directly to:  

**WALLKILL CENTRAL SCHOOL DISTRICT**  
**1500 ROUTE 208**  
**WALLKILL, NEW YORK 12589**  
**PH. (845) 895-7100**  
**ATTN: Brian Devincenzi**
8. Copies of the completed Waste Manifest are to be sent by the disposal facility to the Hauler and Abatement Contractor.
9. Submit a clear, legible signed dump tickets and manifests with final payment request.
10. Final payment request will not be honored without signed dump ticket or manifests accounting for all asbestos waste removed from the site.

#### E. VIOLATIONS OF SPECIFICATIONS

1. Violations of the safety, hygiene, environmental, procedures herein, any applicable federal, state of local requirements or failure to cooperate with the Owner's representative shall be grounds for dismissal and/or termination of this contract.



#### F. VIOLATIONS OF NO SMOKING POLICY

1. The Federal Pro Children Act of 1994 prohibits School District Officials from smoking in any buildings or on the grounds that is property of the School District. The District shall be considered smoke free. The School District strongly enforces its' No Smoking Policy. It is the Contractor's responsibility to inform all workers of this policy. Any worker(s) involved with this project that are found smoking or using tobacco products will be informed that they are in violation of the Federal and State Law and School Board Policy and will be removed from site.



**3.17 LOCATION OF WORK – BASE BID***(Please see attached Drawings for approximate locations)***John G Borden Middle School – Reconstruction**

Asbestos Contractor responsible for abatement responsible for total and complete removal and disposal of approximately 550SF non-friable asbestos-containing Floor Tile on ACM Mastic to the substrate). The layering systems is as follows, from the top, carpet, floor filler, ACM floor tile On ACM mastic, on concrete. Asbestos Contractor responsible for abatement to perform removals utilizing manual, wet methods to ensure total and complete removal existing floor tile systems, including all associated layers, fillers, wood etc. to building substrate(s). Subsequent to final air clearances, the substrate(s) shall be washed with a neutralizing agent to prepare the substrate to accept new coverings/finish as well as eliminate residual odors.

**Ostrander Elementary School – Reconstruction**

Asbestos Contractor responsible for abatement responsible for total and complete removal and disposal of approximately 70LF non-friable asbestos-containing Residual caulk on Non ACM brick and mortar to the substrate. The Asbestos Contractor responsible for abatement will be responsible to remove the door frame from the brick as there maybe additional caulk hidden behind the frame. The asbestos contractor to perform removals utilizing manual, wet methods to ensure total and complete removal, to building substrate(s).

**Plattekill Elementary School – Reconstruction**

Asbestos Contractor responsible for abatement responsible for total and complete removal and disposal of approximately 150SF non-friable asbestos-containing Floor Tile on ACM Mastic to the substrate). The layering systems is as follows, from the top, carpet, floor filler, ACM floor tile On ACM mastic, on concrete. Asbestos Contractor responsible for abatement to perform removals utilizing manual, wet methods to ensure total and complete removal of limited existing floor tile systems, including all associated layers, fillers, wood etc. to building substrate(s). Subsequent to final air clearances, the substrate(s) shall be washed with a neutralizing agent to prepare the substrate to accept new coverings/finish as well as eliminate residual odors.

Asbestos Contractor responsible for abatement responsible for total and complete removal and disposal of approximately 150LF HVAC Ductwork from the corridor/Stage/Library. The Ductwork is above suspended ceiling in the corridor, no ceilings in the stage area, above suspended ceiling and sheetrock ceilings in the library. There are approximately 40 connection seams with approximately 8LF per seam of non-friable asbestos-containing Duct Sealant on the metal duct. Asbestos Contractor responsible for abatement to perform removals utilizing manual, wet methods to ensure total and complete removal of the duct work with ACM Duct Sealant, including all associated hangers. The contractor responsible for abatement will be required to leave a straight clean cut for the HVAC contractor to connect new duct or caps as required by the mechanical drawings.



Roofing, as detailed on attached ACM Location Drawings. The asbestos contractor responsible for abatement responsible for total and complete removal and disposal of approximately 720SF of non-friable asbestos-containing roof materials, flashing tar, pitch pocket tar, equipment/flashing tar to the roof deck, all curbs are to be removed as ACM. Leaving a clean roof deck with no visible ACM materials. **NOTE:** The bottom most layer of tar on the metal deck is positive for ACM.

### **Leptondale Elementary School – Reconstruction**

Roofing, as detailed on attached ACM Location Drawings. Asbestos contractor responsible for abatement responsible for total and complete removal and disposal of approximately 360SF of non-friable asbestos-containing roof materials, flashing tar, pitch pocket tar, equipment/flashing tar to the roof deck, all curbs are to be removed as ACM. Leaving a clean roof deck with no visible ACM materials. **NOTE:** The bottom most layer of tar on the metal deck is positive for ACM.

**NOTE TO ALL CONTRACTORS:** Friable asbestos-containing Pipe Insulation/Mudded Joints/elbows, and/or components (i.e. roofing materials, roof drains, etc.) are potentially hidden/concealed on throughout the building the intent of this project it is not to disturb them.

### **END OF LOCATION OF WORK**

#### **3.18 GENERAL**

- A. The contractor responsible for abatement will be responsible for repairing all building components damaged during abatement including, but not limited to: ceiling tiles, ceiling finishes, wall finishes, floor finishes, etc.
- B. The contractor responsible for abatement shall be responsible for all demolition required to access materials identified in scope of work and on associated drawings.
- C. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner immediately. The contractor responsible for abatement shall not abate these areas without a written notice to proceed. Additional asbestos abatement performed prior to the order to proceed will not be acknowledged.
- D. The contractor responsible for abatement shall remove asbestos-containing floor covering to the building substrate beneath; in areas indicted. Subsequent to final air clearance the substrate shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.
- E. Power tools used to drill, cut into or otherwise disturb asbestos containing material shall be equipped with HEPA filtered local exhaust ventilation.
- F. The contractor responsible for abatement shall provide access to GFCI electrical power, required to perform the area air monitoring for this project, within and immediately adjacent to each work area.
- G. Unwrapped or unbagged ACM shall be immediately placed in an impermeable waste bag or wrapped in plastic sheeting.
- H. Coordinate all removal operations with the Owner.



**RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET**

**Asbestos Employee Medical Examination Statement  
 Certificate of Worker Release  
 Asbestos Employee Training Statement  
 CERTIFICATE OF WORKERS'S ACKNOWLEDGEMENT**

PROJECT NAME: **Wallkill CSD – Reconstruction Project**

ABATEMENT CONTRACTOR'S

NAME: \_\_\_\_\_

**WORKING WITH ASBESTOS INVOLVES POTENTIAL EXPOSURE TO AIRBORNE ASBESTOS FIBERS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER AND RESPIRATORY DISEASES. SMOKING CIGARETTES AND INHALATION OF ASBESTOS FIBERS INCREASES THE RISK THAT YOU WILL DEVELOP LUNG CANCER ABOVE THAT OF THE NON-SMOKING PUBLIC.**

The Contract for this project requires the Abatement Contracting Company to: 1) supply proper respiratory protection devices, and training on their use, to their employees; 2) provide training on safe work practices, and on use of the equipment used on the project, to their employees; and, 3) provide annual medical examinations to their employees meeting the requirements of 29 CFR 1926.1101. The Abatement Contracting Company's signature on this certificate, documents that these contractual obligations are fulfilled, and that you understand the information presented to you.

**\*\*\*\*\*DO NOT SIGN THIS FORM UNLESS YOU FULLY UNDERSTAND THIS INFORMATION\*\*\*\*\***

**RESPIRATORY PROTECTION:** I have been trained in the proper use and limitations of the type of respiratory protection devices to be used on this project. I have reviewed the written respiratory protection program manual and a copy is available for my use. Respiratory protection equipment has been proved, by the Contractor, at no cost to me.

**TRAINING COURSE:** I have been trained in the risks and dangers associated with handling asbestos, breathing asbestos dust, proper work procedures, personal protection and engineering controls. I have satisfactorily completed and Asbestos Safety Training Program for New York State and have been issued a New York State Department of Health Certificate of Asbestos Safety Training.

**MEDICAL EXAMINATION:** I have satisfactorily completed a medical examination within the last 12 months that meets the OSHA requirement for an asbestos worker and included at least 1) medical history 2) pulmonary function 3) medical examination 4) approval to wear respiratory protection devises and may have included an evaluation of a chest x-ray.

Signature: \_\_\_\_\_ Printed Name: \_\_\_\_\_  
 \_\_\_\_\_ Date: \_\_\_\_\_

Witness Signature: \_\_\_\_\_ Printed Name: \_\_\_\_\_  
 \_\_\_\_\_ Date: \_\_\_\_\_

**RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET**



**RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET****ESTIMATE OF ACM QUANTITIES**PROJECT NAME: **Wallkill CSD – Reconstruction Project**

**EACH CONTRACTOR RESPONSIBLE FOR ABATEMENT SHALL READ AND ACKNOWLEDGE THE FOLLOWING NOTICE. A SIGNED AND DATED COPY OF THIS ACKNOWLEDGMENT SHALL BE SUBMITTED WITH THE ABATEMENT CONTRACTOR'S BID FOR THIS PROJECT. FAILURE TO DO SO MAY, AT THE SOLE DISCRETION OF THE OWNER, RESULT IN THE BID BEING CONSIDERED NON-RESPONSIVE AND RESULT IN DISQUALIFICATION OF THE ABATEMENT CONTRACTOR'S BID ON THIS PROJECT.**

**NOTICE**

*The linear and square footages listed within this specification are approximates. Contractor responsible for abatement is required to visit the work locations prior to bid submittal in order to take actual field measurements within each listed location. The Contractor responsible for abatement shall base their bid on actual quantities determined, by them, at the site walkthrough. Estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project.*

**Acknowledgment:** I have read and understand the above **NOTICE** regarding removal quantity estimates and understand that estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project. The Abatement Contractor's signatory represents to the Owner that he/she has the authority of the entity he/she represents to sign this agreement on its behalf.

Company Name: \_\_\_\_\_  
Type or Print

BY: \_\_\_\_\_  
Signature Title Date

Print Name: \_\_\_\_\_

**RETURN THIS EXECUTED FORM WITH COMPLETED BID SHEET**



## **ASSOCIATED ASBESTOS REMOVAL LOCATION DRAWINGS**

### **Wallkill Central School District – Reconstruction Project:**

**DRAWING # BHAZ – 100** – John G Borden Middle School  
**DRAWING # CHAZ – 101** – Ostrander Elementary School  
**DRAWING # DHAZ – 102** – Plattekill Elementary School  
**DRAWING # DHAZ – 103** – Plattekill Elementary School  
**DRAWING # DHAZ – 104** – Plattekill Elementary School  
**DRAWING # EHAZ – 105** – Leptondale Elementary School  
**DRAWING # EHAZ – 106** – Leptondale Elementary School

**END OF SPECIFICATION  
SECTION 02080**



**SECTION 03 30 53 - MISCELLANEOUS CAST-IN-PLACE CONCRETE****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, accessories, placement procedures, and finishes.

**1.3 SUBMITTALS****A. Action Submittals:**

1. Product Data: For each type of product indicated.
  - a. Fibrous reinforcement.
  - b. Slab control joint sealer.
  - c. Penetrating silane sealer.
  - d. Grout.
  - e. Chemical anchor adhesives.
  - f. Curing compound.
  - g. Corrective mortar (industry name is Repair mortar).
  - h. Thin coat patching mortar.
  - i. Corrective overlayment (industry name is Repair Overlayment).
2. Design Mixtures: For each concrete mixture.
  - a. Indicate amounts of mixing water to be withheld for later addition at Project site.
  - b. Include compressive strength test reports.
  - c. Include all ingredient certifications and product data concurrently.
3. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

**B. Informational Submittals:**

1. Material Certificates: For each type of the following, signed by manufacturers:
  - a. Reinforcing bars.
  - b. Epoxy-coated reinforcing bars.
  - c. Welded wire fabric.



- d. Joint dowel bars.
  - e. Cementitious materials.
- 2. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
  - a. Aggregates.
- 3. Proposed curing method for all concrete elements.

#### 1.4 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. Comply with the following sections of ACI 301, unless modified by requirements in the Contract Documents:
  - 1. "General Requirements."
  - 2. "Formwork and Formwork Accessories."
  - 3. "Reinforcement and Reinforcement Supports."
  - 4. "Concrete Mixtures."
  - 5. "Handling, Placing, and Constructing."
- C. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

### PART 2 - PRODUCTS

#### 2.1 FORMWORK

- A. Furnish formwork and formwork accessories according to ACI 301.

#### 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Epoxy-Coated Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed bars, ASTM A 775/A 775M or ASTM A 934/A 934M, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.
- C. Plain-Steel Welded Wire Fabric: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.



## 2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Epoxy Corrective Coating (Industry name is Epoxy Repair Coating): Liquid, two-part, epoxy corrective coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For exterior concrete, use galvanized wire or dielectric-polymer-coated wire bar supports.
  - 2. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
  - 3. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

## 2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout Project:
  - 1. Portland Cement: ASTM C 150, Type I or Type II.
    - a. Fly Ash: ASTM C 618, Class C or F.
    - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Normal-Weight Aggregates:
  - 1. ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
  - 2. ASTM C 33, Class 4S coarse aggregate or better, graded, for exterior concrete. Provide aggregates from a single source.
  - 3. Maximum Coarse-Aggregate Size:
    - a. Slabs on Grade: 1-1/2 inches nominal.
    - b. All other concrete: 1 inch nominal.
  - 4. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.



- D. Synthetic Macro-Fiber: Polyolefin macro-fibers (containing no reprocessed olefin materials) engineered and designed for use as secondary reinforcing in concrete, complying with ASTM C 1116/C 1116M, Type III, 1 1/4 to 2-1/4 inches long, varying fiber thickness, and no water absorption.

## 2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. Mid-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type A or Type F. Water content reduction to be greater than 7%.
  - 5. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

## 2.6 RELATED MATERIALS

- A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.
- B. Slab Control Joint Sealer: Two-component, self-leveling, flexible, 100 percent solids, epoxy resin and adhesive with a Type A shore durometer hardness of 80 per ASTM D 2240 and conforming to ACI 302.1R (5.12-Joint Materials).
- C. Bond breakers: Waterborne, VOC compliant form release agent.
- D. Penetrating, Silane Sealer: Single component, minimum 40% silane, waterbased slab sealer that forms chemical bond to the concrete. VOC compliant.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. BASF Construction Chemicals; Enviroseal 40.
    - b. Chem Masters; Aquanil Plus 40.
    - c. Dayton Superior Corporation; Weather Worker 40% J29WB.
- E. Grout: ASTM C 1107, factory-packaged, shrinkage-resistant, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.



- F. Chemical Anchor Adhesives: Heavy duty, two component injectable adhesive designed to be dispensed using double chamber gun with mixing nozzle. Adhesives in capsule form will not be accepted.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. DeWalt; AC200+.
    - b. Hilti, Inc.; HIT-HY 200R; HIT-HY 200A; HIT-ICE.
    - c. ITW Redhead; A7+.

## 2.7 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth or cotton mats.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1-D, Class B, dissipating, with fugitive dye.

## 2.8 RECONSTRUCTION AND CORRECTIVE MATERIALS

- A. Corrective Mortar (Industry name is Repair Mortar): Site-mixed Portland-cement mix for vertical and overhead surfaces. Mix dry-pack corrective mortar, consisting of one part shrinkage-compensating, Portland cement to two and one-half parts fine aggregate passing a No. 16 sieve by damp, loose volume, using only enough water for handling and placing.
- B. Thin Coat Patching Mortar: Polymer modified, Portland cement, suitable for interior and exterior applications. Featheredge up to 3/16 inch. For thicker applications manufacturer's recommendations to extend mix with an aggregate may apply.
- C. Corrective Overlayment (Industry name is Repair Overlayment): Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations. For thicker applications manufacturer's recommendations to extend mix with an aggregate may apply.
  1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
  2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
  4. Compressive Strength: Not less than 5,000 psi at 28 days when tested according to ASTM C 109/C 109M.

## 2.9 CONCRETE MIXTURES

- A. Comply with ACI 301 requirements for concrete mixtures.



- B. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing, high-range water-reducing or plasticizing admixture in all concrete. Design mix for optimum placement and workability.
  2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
  3. Use a mid-range, water-reducing admixture in pumped concrete, all concrete slabs (including concrete walks), concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
- C. Exterior Concrete: For concrete elements at the exterior of the building, including but not limited to slabs (concrete walks), curbs and architectural concrete elements, proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4,500 psi at 28 days.
  2. Maximum Water-Cementitious Materials Ratio: 0.45.
  3. Slump Limit: 4 inches, plus or minus 1 inch; or 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
  4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size. Applies to all slabs on grade.
  5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size. Applies to all exterior concrete other than slabs on grade.
- D. All Other Concrete: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: 4,000 psi at 28 days.
  2. Maximum Water-Cementitious Materials Ratio: 0.50.
  3. Slump Limit: 4 inches, plus or minus 1 inch; or 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
  4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.
  5. Synthetic Macro-Fiber: Uniformly disperse in concrete mixture, at concrete batch facility, not less than 4.0 lb/cu. yd..

## 2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.



1. When air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
  1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
  2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
  3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that subgrade conditions are satisfactory prior to forming or pouring concrete. Owner's Testing Agency shall inspect slab and footing subgrade prior to placing concrete.
- B. Verify that reinforcing is properly in place prior to pouring concrete.
- C. Verify that formwork is complete and properly secured prior to placing concrete.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 FORMWORK

- A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

### 3.3 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

### 3.4 STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.



### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Locate and install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Control Joints in Slabs-on-Grade: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness, as follows:
  - 1. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Space joints as shown on Drawings or, if not shown, at 12 feet average spacing and not exceeding 15 feet. Locate joints to align with existing joints where possible.
- D. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

### 3.6 CONCRETE PLACEMENT

- A. Comply with ACI 301 for placing concrete.
- B. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, (4.3.2.1 Slump Adjustment.)
  - 1. With each concrete mixture submittal, indicate amounts of mixing water to be withheld for later addition at Project site.
  - 2. Water added must not increase the water-cement ratio past the approved mix design ratio.
  - 3. Add additional water reducer or plasticizer to mix instead of adding water to achieve flowable, workable concrete. Do not add water to concrete after adding these admixtures to mixture.
  - 4. Do not add water after truck is more than half empty.
- C. Consolidate concrete with mechanical vibrating equipment.
- D. Equipment Bases and Foundations:
  - 1. Coordinate sizes and locations of concrete bases with actual equipment provided.
  - 2. Construct concrete bases 4 inches high unless otherwise indicated; and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.



3. Minimum Compressive Strength: 4,000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

### 3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas corrected and patched. Remove fins and other projections exceeding 1/2 inch.
  1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Correct and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch.
  1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following rubbed finish, defined in ACI 301, to smooth-formed finished as-cast concrete where indicated:
  1. Smooth-rubbed finish.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.8 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.
  1. Do not further disturb surfaces before starting finishing operations.



- C. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- D. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete walks, slabs, platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
- E. Exterior Concrete Walks and Slabs: Apply penetrating, silane sealer per manufacturer's instructions.

### 3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
- B. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- C. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately correct any holes or tears during curing period using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and correct damage during curing period.

### 3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.



- B. Contractor to supply all batch tickets to Owner's testing agency. Batch tickets to note w/c ratio and amount of water allowed to be added at Project site.
- C. Inspections
  - 1. Deep Foundations (such as pole bases, etc): verify placement locations and plumbness, confirm diameters, lengths, embedment into bedrock, and adequate end bearing capacity.
- D. Tests: Perform according to ACI 301. Include Unit Weight: ASTM C 138, fresh unit weight of concrete. Two tests per truck load; one at beginning of pour and near end of pour.
  - 1. Testing Frequency: One composite sample shall be obtained for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
  - 2. Include corresponding concrete mix batch tickets with each test report.
  - 3. Indicate amount of water added to batch at Project site.

### 3.11 CORRECTIVE WORK

- A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 03 30 53



**SECTION 03 48 10 - PRECAST CONCRETE LIGHTING POLE BASES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Precast concrete bases for site lighting poles.
  - 2. Concrete with commercial architectural finish.

**1.3 SUBMITTALS**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.
- B. Action submittals
  - 1. Design Mixtures: For each precast concrete mixture. Include compressive strength and water-absorption tests. Include all ingredient certifications and product data concurrently.
  - 2. Shop Drawings: Include pole base locations, plans, elevations, dimensions, shapes and sections, openings, and reinforcement. Detail fabrication and installation of pole bases.
    - a. Indicate joints, reveals, and extent and location of each surface finish.
    - b. Detail loose and cast-in hardware, lifting and erection inserts, anchor bolts, and grounding rod.
    - c. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.
    - d. Include and locate openings, including for conduit.
    - e. Indicate location of each pole base by same identification mark placed on panel.

**1.4 QUALITY ASSURANCE**

- A. Fabricator Qualifications
  - 1. Participates in PCI's Plant Certification program at time of bidding and is designated a PCI-certified plant as follows:
    - a. Group CA, Category C1A - Precast Concrete Products (no prestressed reinforcement).



- B. Design Standards: Comply with ACI 318 and design recommendations in PCI MNL 120, "PCI Design Handbook - Precast and Prestressed Concrete," and in PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."
- C. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 116, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products."

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Support units during shipment on nonstaining shock-absorbing material in same position as during storage.
- B. Store units with adequate bracing and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping or other physical damage.
  - 1. Store units with dunnage across full width of each bearing point unless otherwise indicated.
  - 2. Place adequate dunnage of even thickness between each unit.
  - 3. Place stored units so identification marks are clearly visible, and units can be observed.
- C. Handle and transport units in a position consistent with their shape and design in order to avoid excessive stresses that would cause cracking or damage.
- D. Lift and support units only at designated points shown on Shop Drawings.

## 1.6 COORDINATION

- A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction before starting that Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

# PART 2 - PRODUCTS

## 2.1 MOLD MATERIALS

- A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that will provide continuous and true precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.
  - 1. Mold-Release Agent: Commercially produced liquid-release agent that will not bond with, stain or adversely affect precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.



## 2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 116.

## 2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type III, gray, unless otherwise indicated.
  - 1. For surfaces exposed to view in finished structure, mix gray with white cement, of same type, brand, and mill source.
- B. Normal-Weight Aggregates: Except as modified by PCI MNL 116, ASTM C 33, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.
- C. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.
- D. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride, or more than 0.15 percent chloride ions or other salts by weight of admixture.
  - 1. Water-Reducing Admixtures: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. Water-Reducing and Accelerating Admixture: ASTM C 494/C 494M, Type E.
  - 5. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M.

## 2.4 CONCRETE MIXTURES

- A. Prepare design mixtures for each type of precast concrete required.
- B. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at pole base fabricator's option.
- C. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 or PCI MNL 116 when tested according to ASTM C 1218/C 1218M.



- D. Normal-Weight Concrete Mixtures: Proportion full-depth mixture by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:
  - 1. Compressive Strength (28 Days): 5000 psi.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
- E. Water Absorption: 6 percent by weight or 14 percent by volume, tested according to PCI MNL 116.
- F. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 116.
- G. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.
- H. Concrete Mix Adjustments: Concrete mix design adjustments may be proposed by fabricator if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

## 2.5 MOLD FABRICATION

- A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement by release agent.
- B. Maintain molds to provide completed pole bases of shapes, lines, and dimensions indicated, within fabrication tolerances specified.
  - 1. Form joints are not permitted on faces exposed to view in the finished work.
  - 2. Edge and Corner Treatment: Uniformly chamfered or radiused as detailed on Drawings.

## 2.6 FABRICATION

- A. Set anchor bolts according to anchor-bolt templates furnished by light pole manufacturer.
- B. Cast-in reglets, slots, holes, and other accessories in pole bases as indicated on the Contract Drawings.
- C. Reinforcement: Comply with recommendations in PCI MNL 116 for fabricating, placing, and supporting reinforcement.
  - 1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete.
  - 2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.



3. Place reinforcing steel to maintain at least 1 1/2-inch minimum concrete cover. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
- D. Reinforce pole bases to resist handling, transportation, and erection stresses.
  - E. Comply with requirements in PCI MNL 116 and in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.
  - F. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air on surfaces. Use equipment and procedures complying with PCI MNL 116.
    1. Place self-consolidating concrete without vibration according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants."
  - G. Comply with ACI 306.1 procedures for cold-weather concrete placement.
  - H. Comply with PCI MNL 116 procedures for hot-weather concrete placement.
  - I. Identify pickup points of pole bases and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each pole base on a surface that will not show in finished structure.
  - J. Cure concrete, according to requirements in PCI MNL 116, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.
  - K. Discard and replace pole base that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless corrective work meets requirements in PCI MNL 116 and meet Architect's approval.

## 2.7 FABRICATION TOLERANCES

- A. Fabricate pole bases straight and true to size and shape with exposed edges and corners precise and true so each finished unit complies with PCI MNL 116 product dimension tolerances.

## 2.8 COMMERCIAL FINISHES

- A. Commercial Grade: Remove fins and large protrusions and fill large holes. Rub or grind ragged edges. Faces must have true, well-defined surfaces. Air holes, water marks, and color variations are permitted. Limit form joint offsets to 3/16 inch. This finish applies to sections of pole base that is hidden from public view.
- B. Smooth, steel trowel finish unformed surfaces (i.e.: top of pole base.) Consolidate concrete, bring to proper level with straightedge, float, and trowel to a smooth, uniform finish.



## 2.9 COMMERCIAL ARCHITECTURAL FINISHES

- A. Manufacture member faces free of joint marks, grain, and other obvious defects with corners, including false joints, uniform, straight, and sharp. Finish exposed-face surfaces of precast concrete units to match Drawings and as follows:
  - 1. Smooth-Surface Finish: Provide surfaces free of excessive air voids, sand streaks, and honeycombs, with uniform color and texture.

## 2.10 SOURCE QUALITY CONTROL

- A. Testing: Test and inspect pole bases according to PCI MNL 116 requirements.
  - 1. Test and inspect self-consolidating concrete according to PCI TR-6.
- B. Strength of pole bases will be considered deficient if units fail to comply with ACI 318 requirements for concrete strength.
- C. If there is evidence that strength of precast concrete units may be deficient or may not comply with ACI 318 requirements, employ a qualified testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C 42/C 42M.
  - 1. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by Architect.
  - 2. Cores will be tested in an air-dry condition or, if units will be wet under service conditions, test cores after immersion in water in a wet condition.
  - 3. Strength of concrete for each series of 3 cores will be considered satisfactory if average compressive strength is equal to at least 85 percent of 28-day design compressive strength and no single core is less than 75 percent of 28-day design compressive strength.
  - 4. Test results will be made in writing on same day that tests are performed, with copies to Architect, Contractor, and precast concrete fabricator. Test reports will include the following:
    - a. Project identification name and number.
    - b. Date when tests were performed.
    - c. Name of precast concrete fabricator.
    - d. Name of concrete testing agency.
    - e. Identification letter, name, and type of precast concrete unit(s) represented by core tests; design compressive strength; type of break; compressive strength at breaks, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.



- D. Patching: If core test results are satisfactory and pole base comply with requirements, clean and dampen core holes and solidly fill with same precast concrete mixture that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.
- E. Defective Units: Discard and replace pole bases that do not comply with requirements, including strength, manufacturing tolerances, and color and texture range. Chipped, spalled, or cracked units may be corrected, subject to Architect's approval. Architect reserves the right to reject precast units that do not match approved samples, or sample panels.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine subgrade conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance of the Work. Owner's Geotechnical Engineer or Owner's Testing Agency shall inspect subgrade prior to installing pole bases.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Erect pole bases level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until backfill and compaction is complete.
  - 1. Remove projecting lifting devices and grout fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
- B. Field cutting of pole bases is not permitted without approval of the Architect.
- C. Fasteners: Do not use drilled or powder-actuated fasteners for attaching accessory items to precast, prestressed concrete units.
- D. At bolted connections, use lock washers, tack welding, or other approved means to prevent loosening of nuts after final adjustment.

### 3.3 ERECTION TOLERANCES

- A. Erect pole base level, plumb, square, true, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135.



### 3.4 FIELD QUALITY CONTROL

- A. Correct or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Testing agency will prepare test and inspection reports.

### 3.5 CORRECTIVE WORK

- A. Correct pole bases if permitted by Architect.
  - 1. Corrective work may be permitted if structural adequacy, serviceability, durability, and appearance of units has not been impaired.
- B. Mix patching materials and correct units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and corrected work, when viewed in typical daylight illumination from a distance of 20 feet.
- C. Prepare and correct damaged galvanized coatings with galvanizing corrective paint according to ASTM A 780.
- D. Wire brush, clean, and paint damaged prime-painted components with same type of shop primer.
- E. Remove and replace damaged pole bases that cannot be corrected or when corrective work does not comply with requirements as determined by Architect.

### 3.6 CLEANING

- A. Clean grout, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.
- B. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.
  - 1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's written recommendations. Clean soiled precast concrete surfaces with detergent and water, using stiff fiber brushes and sponges, and rinse with clean water. Protect other work from staining or damage due to cleaning operations.
  - 2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF SECTION 03 48 10



## **SECTION 03 54 15 – MOISTURE CONTROL SYSTEM**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes moisture control system for concrete surfaces below hydraulic-cement-based underlayment and interior floor coverings.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.

1. Moisture control system.
2. Crack and joint filler.
3. Patching compound.

- B. Warranty: Sample of special warranty.

#### **1.5 INFORMATIONAL SUBMITTALS**

- A. Manufacturer Certificates: Signed by manufacturers of moisture control system, underlayment and floor covering system certifying that products are compatible.
- B. Agreement to Warranty: Signed by manufacturer of moisture control system confirming agreement to warranty the system.

#### **1.6 CLOSEOUT SUBMITTALS**

- A. Warranty: Executed special warranty.



## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Installer who is approved by manufacturer for application of moisture control system products required for this Project.
- B. Product Compatibility: Manufacturers of moisture control system, underlayment and floor covering system certify in writing that products are compatible.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

## 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature and humidity, ventilation, and other conditions affecting moisture control system performance.
  - 1. Place moisture control system only when ambient temperature and temperature of substrates are between 50 and 80 deg F. Expedite installation if substrate and site conditions are above 70 deg F.
  - 2. Place moisture control system only when building is enclosed, with permanent HVAC system operating.

## 1.10 COORDINATION

- A. Coordinate application of moisture control system with requirements of underlayment products, specified in other Division 03 Sections, and with requirements of floor covering products, including adhesives, specified in Division 09 Sections, to ensure compatibility of products.

## 1.11 WARRANTY

- A. Special Warranty: Moisture control system manufacturer's standard form in which manufacturer agrees to repair or replace moisture control system that does not comply with requirements to properly control moisture within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MOISTURE CONTROL SYSTEM

- A. Moisture Control System: One-component epoxy-based moisture control system "Ardex MC Rapid" consisting of primer, P-4 and sealer coats.



- B. Sand: Fine sand less than 1/50 of an inch in grain size or 98.5 percent passing sieve size #35.
- C. Crack and Joint Filler: Two-part epoxy crack and joint filler.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Ardex Ardifix Joint Sealant.
- D. Patching Compound: Portland cement-based smoothing compound.
  - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Ardex; K-60, K-301 and MRP.
- E. Water: Potable and at a temperature of not more than 70 deg F.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance.
  - 1. File pre-installation checklist with manufacturer and obtain manufacturer's written agreement to warranty and confirmation of approval to proceed.
  - 2. Proceed with application only after unsatisfactory conditions have been corrected.
- B. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
  - 1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through moisture control system.
- B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair moisture control system bond. Prepare surface to achieve minimum surface profile of ICRI CSP #3 (light shot blast).
  - 1. Apply patching compound to pre-smooth concrete where mechanical preparation results in a surface exceeding limits set by moisture control system manufacturer.



- C. Testing: Test substrates for moisture vapor emissions in accordance with either of the following methods:
  - 1. Moisture Testing Method 1: Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 20 lb.
  - 2. Moisture Testing Method 2: Perform relative humidity test, ASTM F 2170. Proceed with installation only after substrates do not exceed a maximum relative humidity of 95 percent as measured by a Wagner Rapid RH probe.

### 3.3 APPLICATION

- A. General: Mix and apply moisture control system components according to manufacturer's written instructions.
  - 1. Close areas to traffic during moisture control system application and for time period after application recommended in writing by manufacturer.
  - 2. Coordinate application of components to provide optimum substrate and intercoat adhesion.
  - 3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through moisture control system.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply sealer coat over primer at manufacturer's recommended spreading rate. While sealer coat is fresh, broadcast sand layer at manufacturer's recommended spreading rate.
- D. Unless otherwise recommended by manufacturer, allow system to cure for at least 16 hours before broom sweeping and vacuuming to remove excess sand.
- E. Do not allow traffic of any type on unprotected moisture control system.
- F. Apply compatible underlayment over moisture control system after time period recommended in writing by manufacturer.

### 3.4 PROTECTION

- A. Protect moisture control system during installation of construction over system and for remainder of construction period.

END OF SECTION 03 54 15



**SECTION 03 54 16 - HYDRAULIC CEMENT UNDERLAYMENT****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes hydraulic-cement-based, polymer-modified, self-leveling underlayment for application below interior floor coverings.

**1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Underlayment.
  - 2. Aggregate.
  - 3. Primer.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.

**1.6 QUALITY ASSURANCE**

- A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.



## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

## 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.
  - 1. Place hydraulic-cement-based underlayments only when ambient temperature and temperature of substrates are between 50 and 80 deg F.

## 1.9 COORDINATION

- A. Coordinate application of underlayment with requirements of floor-covering products and adhesives, specified in Division 09 Sections, to ensure compatibility of products.

# PART 2 - PRODUCTS

## 2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

- A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product that can be applied in minimum uniform thickness of 1/4 inch and that can be feathered at edges to match adjacent floor elevations.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Ardex; K-15 Self-Leveling Underlayment Concrete.
    - b. Dependable Chemical Co., Inc.; Skimflow ES.
    - c. Maxxon Corporation; Level-Right.
  - 2. Cement Binder: ASTM C150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C219.
  - 3. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C109/C109M.
- B. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch; or coarse sand as recommended by underlayment manufacturer.
  - 1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- C. Water: Potable and at a temperature of not more than 70 deg F.



- D. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance.
  - 1. Proceed with application only after unsatisfactory conditions have been corrected.
- B. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
  - 1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
  - 2. Fill substrate voids to prevent underlayment from leaking.
- B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
  - 1. Moisture Testing: Perform anhydrous calcium chloride test, ASTM F1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
  - 2. Install underlayment reinforcement recommended in writing by manufacturer.

### 3.3 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.
  - 1. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.
  - 2. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface.
  - 1. Apply a final layer without aggregate to product surface.
  - 2. Feather edges to match adjacent floor elevations.



- D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.
- E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.

#### 3.4 PROTECTION

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03 54 16



## **SECTION 04 20 00 - UNIT MASONRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Concrete masonry units.
  - 2. Face brick.
  - 3. Mortar and grout.
  - 4. Masonry-joint reinforcement.
  - 5. Ties and anchors.
  - 6. Embedded flashing.
  - 7. Miscellaneous masonry accessories.
- B. Products Installed but not Furnished under This Section:
  - 1. Steel lintels in unit masonry.

#### **1.3 DEFINITIONS**

- A. CMU(s): Concrete masonry unit(s).
- B. NRC: Noise Reduction Coefficient.
- C. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.5 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. CMUs.



2. Face brick.
  3. Portland cement.
  4. Colored cement products.
  5. Aggregate for mortar.
  6. Masonry-joint reinforcement for multiwythe masonry.
  7. Individual wire ties.
  8. Anchors for connecting CMU to existing masonry.
  9. Adjustable masonry-veneer anchors.
  10. Adhesives, primers, and seam tapes for flashings.
  11. Proprietary cleaner.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
1. Face brick.
  2. Flexible flashing.
  3. Drip plate flashing.
  4. Termination bars for flexible flashing.
  5. Weep/cavity vent products.
  6. Cavity drainage material.
- C. Shop Drawings: For the following:
- D. Samples for Initial Selection:
1. Face brick, in the form of portable display panels.
  2. Colored mortar.
- E. Samples for Verification: For each type and color of the following:
1. Face brick, in the form of straps of five or more bricks.
  2. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type and size of the following:
1. Masonry units.
    - a. Include material test reports substantiating compliance with requirements.
    - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
    - c. For exposed brick, include test report for efflorescence according to ASTM C67.
    - d. For masonry units, include data and calculations establishing average net-area compressive strength of units.
  2. Cementitious materials. Include name of manufacturer, brand name, and type.



3. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
  4. Grout mixes. Include description of type and proportions of ingredients.
  5. Joint reinforcement.
  6. Anchors, ties, and metal accessories.
- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
1. Include test reports, according to ASTM C1019, for grout mixes required to comply with compressive strength requirement.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

#### 1.9 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
  1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
  2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.



1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  2. Protect sills, ledges, and projections from mortar droppings.
  3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602.

### 2.3 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.



- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work and will be within 20 feet vertically and horizontally of a walking surface.

## 2.4 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
  - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
  - 2. Provide square-edged units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C90.
  - 1. Density Classification: Lightweight unless otherwise indicated.
  - 2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
  - 3. Exposed Faces: Provide uniform fine texture units suitable for painting.

## 2.5 BRICK

- A. General: Provide sizes and shapes to match existing adjacent brick.
  - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
- B. Face Brick: Facing brick complying with ASTM C216.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide brick with color(s) and color distribution to match existing adjacent brick as approved by architect or comparable product.
  - 2. Grade: SW.
  - 3. Type: FBS.
  - 4. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C67.
  - 5. Efflorescence: Provide brick that has been tested according to ASTM C67 and is rated "not effloresced."
  - 6. Size (Actual Dimensions): to match existing adjacent brick..
  - 7. Application: Use where brick is exposed unless otherwise indicated.



8. Where shown to "match existing" provide face brick matching color range, texture, and size of existing adjacent brickwork.
9. Color and Texture: As selected by Architect

## 2.6 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
  1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- E. Colored Cement Products: Packaged blend made from portland cement and hydrated lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.
  1. Formulate blend as required to produce color indicated.
    - a. Color: As selected from manufacturer's standard colors.
  2. Pigments shall not exceed 10 percent of portland cement by weight.
- F. Aggregate for Mortar: ASTM C144.
  1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
  2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
  3. White-Mortar Aggregates: Natural white sand or crushed white stone.
  4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- G. Aggregate for Grout: ASTM C404.
- H. Water: Potable.



## 2.7 REINFORCEMENT

### A. Masonry-Joint Reinforcement, General: ASTM A951/A951M.

1. Exterior Walls: Hot-dip galvanized carbon steel.
2. Wire Size for Side Rods: 0.148-inch diameter (9 gage).
3. Wire Size for Cross Rods: 0.148-inch diameter (9 gage).
4. Wire Size for Veneer Ties: 0.187-inch diameter.
5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

### B. Masonry-Joint Reinforcement for Multiwythe Masonry:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Hohmann & Barnard, Inc.; 270 Ladder or 170 Truss Eye-Wire.
  - b. Wire-Bond; Series 800 Ladder or 900 Truss Level-Eye (Hook & Eye).
2. Adjustable (two-piece) type, ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch and maximum vertical adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.

## 2.8 TIES AND ANCHORS

### A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

### B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A82/A82M, with ASTM A153/A153M, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.
3. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

### C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Heckmann Building Products Inc., Div. of Mechanical Plastics Corp.; Double Eye Rod Anchor (262) and Double Pintle Tie (263).
  - b. Hohmann & Barnard, Inc.; Adjustable Wall Ties (Pintles & Eyes).
2. Where wythes do not align or are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.



3. Wire: Fabricate from 3/16-inch-diameter, hot-dip galvanized steel wire.
- D. Anchors for Connecting CMU to Existing Masonry: Corrugated strips formed from 0.060-inch-thick (16 gage) steel sheet, hot-dip galvanized after fabrication, 1-1/4 inch wide, with 1-1/2 inch bend.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Heckmann Building Products Inc., Div. of Mechanical Plastics Corp.; #187 Hole-Type Brick Veneer Anchor.
    - b. Wire-Bond; #2501 Veneer Anchor Corrugated.
- E. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
  2. Fabricate wire ties from 0.187-inch- diameter, hot-dip galvanized-steel wire unless otherwise indicated.
  3. Screw-Attached, Thermally-Isolated, Masonry-Veneer Anchors: Wire tie and a corrosion-resistant, self-drilling, barrel screw designed to receive wire tie. Barrel has gasketed washer head that covers hole in insulation.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Heckmann Building Products Inc., Div. of Mechanical Plastics Corp.; Original Pos-I-Tie Veneer Anchoring Clip (75), Pos-I-Tie ThermalClip (75TC), and Pintle Wire Tie for ThermalClip (282-N).
      - 2) Hohmann & Barnard, Inc.; Thermal 2-Seal Wing Nut Anchor and Adjustable Wall Ties (pintle).
      - 3) Wire-Bond; #4522 SureTie WS, #4590 Thermal Grip Washer, and #4515 SureTie Double Hook.

## 2.9 EMBEDDED FLASHING MATERIALS

- A. Flexible Flashing: Use the following unless otherwise indicated:
1. Copper-Laminated Flashing: 5-oz./sq. ft. copper sheet bonded between two layers of glass-fiber cloth/polymer fabric; non-asphaltic type. Use only where flashing is fully concealed in masonry.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Advanced Building Products, Inc.; Copper Sealtite 2000.



- 2) Wire-Bond; Copper Seal (Copper Fabric Flashing) #4140.
  - 3) York Manufacturing, Inc.; Multi-Flash 500.
- B. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- C. Termination Bars for Flexible Flashing: Stainless steel bars not less than 1/8 inch by 1 inch.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Heckmann Building Products Inc., Div. of Mechanical Plastics Corp.; Termination Bar (1050).
    - b. Hohmann & Barnard, Inc.; T1 - Termination Bar.
    - c. Wire-Bond; #4200 Termination Bar.

## 2.10 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hohmann & Barnard, Inc.; NS – Closed Cell Neoprene Sponge.
    - b. Wire-Bond; #3300 Expansion Joint.
- B. Weep/Cavity Vent Products: Use the following unless otherwise indicated:
1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Advanced Building Products, Inc.; Mortar Maze Weep Vents.
      - 2) Heckmann Building Products Inc., Div. of Mechanical Plastics Corp.; Cell Vent (85).
      - 3) Hohmann & Barnard, Inc.; QV – Quadro-Vent.
      - 4) Wire-Bond; #3601 Cell Vent.
- C. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hohmann & Barnard, Inc.; Mortar Trap or Mortar Web.



- b. Mortar Net Solutions; WallDefender.
  - c. Wire-Bond; Cavity Net DT or Cavity Net.
- 2. Configuration: Provide one of the following:
  - a. Strips, full depth of cavity and 10 inches high, with dovetail-shaped notches 7 inches deep that prevent clogging with mortar droppings.
  - b. Strips, not less than 3/4 inch thick and 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.

## 2.11 MASONRY CLEANERS

- A. Proprietary Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Prosoco, Inc.

## 2.12 WATER-REPELLENT TREATMENTS

## 2.13 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
  - 1. Do not use calcium chloride in mortar or grout.
  - 2. Use portland cement-lime mortar unless otherwise indicated.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
  - 1. For concrete masonry unit backup in exterior walls, masonry bearing walls, shear walls and masonry below grade or in contact with earth, use Type S. Not for use in masonry veneer construction.
  - 2. Use Type N mortar in all masonry veneer construction and in all masonry construction other than noted in the requirements for Type S mortar above.



- D. Pigmented Mortar: Use colored cement product.
  - 1. Application: Use pigmented mortar for exposed mortar joints with the following units:
    - a. Face brick.
- E. Grout for Unit Masonry: Comply with ASTM C476.
  - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602 for dimensions of grout spaces and pour height.
  - 2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
  - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C143/C143M.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - 1. Verify that foundations are within tolerances specified.
  - 2. Verify that reinforcing dowels are properly placed.
  - 3. Verify that substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- C. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- D. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.



- E. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C67. Allow units to absorb water so they are damp but not wet at time of laying.

### 3.3 TOLERANCES

#### A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

#### B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

#### C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.



3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

### 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

### 3.5 MORTAR BEDDING AND JOINTING

- A. Lay CMUs as follows:
  1. Bed face shells in mortar and make head joints of depth equal to bed joints.
  2. Bed webs in mortar in all courses of piers, columns, and pilasters.
  3. Bed webs in mortar in grouted masonry, including starting course on footings.
  4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
  5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.



- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
- E. Cut joints flush where indicated to receive air barriers unless otherwise indicated.

### 3.6 CAVITY WALLS

- A. Bond wythes of cavity walls together using one of the following methods:
  - 1. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.
    - a. Use adjustable-type (two-piece-type) reinforcement
  - 2. Adjustable Masonry-Veneer Anchors: Comply with requirements for anchoring masonry veneers.
- B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity.
- C. Install air barrier system to comply with Division 07 Section "Fluid-Applied Membrane Air Barriers."
- D. Installing Cavity Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
  - 1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation, air barrier, and masonry.

### 3.7 LINTELS

- A. Install steel lintels where indicated.
- B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

### 3.8 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.



B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 12 inches, and at least 6 inches above the top of cavity drainage material or to height as recommended by cavity drainage material manufacturer. Fasten upper edge of flexible flashing to inner wythe through termination bar.
3. At masonry-veneer walls, extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 12 inches, and at least 6 inches above the top of the cavity drainage material or to height as recommended by cavity drainage material manufacturer. Fasten upper edge of flexible flashing to sheathing through termination bar.
4. Apply a continuous bead of compatible sealant to the top of the termination bar.
5. At lintels, extend flashing a minimum of 6 inches into masonry at each end.
6. Install metal drip plate flashing beneath flexible flashing at exterior face of wall as recommended by manufacturer. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip plate flashing.

C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vent products to form weep holes.
2. Space weep holes 24 inches o.c. unless otherwise indicated.

D. Place cavity drainage material in airspace behind veneers to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

### 3.9 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Level 3 in TMS 402.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.



- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C67 for compressive strength.
- F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C140 for compressive strength.
- G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C780.
- H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C1019.
- I. Reinforcement Inspections: Inspect reinforcement for size and placement.
- J. Grout and Mortar Inspection: Inspect grout and mortar mixing operations to ensure mix proportions and procedures comply with specified requirements.
- K. Tie and Anchor Inspections: Inspect ties and anchors for type, spacing, and proper installation.
- L. Flashing and Accessories Inspections: Inspect flashing and accessories for type and proper installation.
- M. Cold-Weather and Hot-Weather Inspections: Inspect masonry construction operations for compliance with specified cold-weather and hot-weather procedures.

### 3.10 CORRECTING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.



3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
7. Clean masonry with a proprietary cleaner applied according to manufacturer's written instructions.

END OF SECTION 04 20 00



## **SECTION 05 21 00 - STEEL JOIST FRAMING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. K-series steel joists.
  - 2. KCS-type K-series steel joists.
  - 3. LH- series long-span steel joists.
  - 4. Special "SP" joists.
  - 5. Joist accessories.

#### **1.3 DEFINITIONS**

- A. SJI's "Specifications": Steel Joist Institute's "Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders."
- B. Special Joists, SP Joists: Steel joists or joist girders requiring modification by manufacturer to support non-uniform, unequal, or special loading conditions that invalidate load tables in SJI's "Specifications."

#### **1.4 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Provide special joists and/or custom profile joists and connections capable of withstanding design loads indicated. Design and fabricate to match top chord profile and web member configuration as shown on Drawings.
  - 1. Design special joists and/or custom profile joists to support special loading conditions including non-uniform loads, concentrated loads and end moments as shown on Drawings with live-load deflections no greater than the following:
    - a. Floor Joists: Vertical deflection of 1/360 of the span, unless otherwise noted.
    - b. Roof Joists: Vertical deflection of 1/240 of the span, unless otherwise noted.
  - 2. Design joists and bridging for net uplift pressure where shown on Drawings.



## 1.5 SUBMITTALS

### A. Action Submittals:

1. Product Data: For each type of joist, accessory, and product.
  - a. Submit description of shop primer.
2. Shop Drawings:
  - a. Include layout, designation, number, type, sizes, location, and spacing of joists.
  - b. Include joining and anchorage details, bracing, bridging, and joist accessories; splice and connection locations and details; and attachments to other construction.
  - c. LH-Series: Submit drawings indicating joist profile including size of top and bottom chord members and size and location of web members.
  - d. Special Joists or SP Joists: Submit drawings indicating special loading used to design joists including non-uniform loads, concentrated loads and end moments as shown on Drawings. Submit drawings indicating joist profile including size of top and bottom chord members and size and location of web members.
3. Delegated Design Submittal: Comprehensive engineering analysis of special joists and/or custom profile joists signed and sealed by the qualified professional engineer (licensed in the State of New York) responsible for its preparation certifying that the design is in compliance with the Building Code of New York. To include, but not limited to, the following:
  - a. Description of design criteria.
  - b. Structural analysis depicting stress and deflection requirements for each framing application.
  - c. Selection of framing components and accessories.
  - d. Design and verification of connection.

### B. Informational Submittals

1. Mill Certificates: For each type of bolt.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables in SJI's "Specifications." Fabricator and Erector to have at least 5 years experience with projects of similar size and scope.
  1. Manufacturer's responsibilities include providing professional engineering services for designing Special Joists and/or Custom Profile Joists to comply with performance requirements.
- B. Welding Qualifications: Qualify field-welding procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."



- C. Structural Preconstruction Conference: Attend conference at Project site.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle joists as recommended in SJI's "Specifications."
- B. Protect joists from corrosion, deformation, and other damage during delivery, storage, and handling.
- C. Store joist bundles off the ground.
- D. Do not place joist bundles on un-braced structural frame.

## PART 2 - PRODUCTS

### 2.1 K-SERIES STEEL JOISTS

- A. Manufacture steel joists of type indicated according to "Standard Specifications for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.
  - 1. Joist Type: K-series steel joists and KCS-type K-series steel joists.
- B. Provide holes in chord members where shown on Drawings for securing other items to steel joists and deduct area of holes from chord when calculating member strength.
- C. Camber joists according to SJI's "Specifications." unless noted otherwise on drawings.
- D. Equip bearing ends of joists with manufacturer's standard beveled ends or sloped shoes if joist slope exceeds 1/4 inch per 12 inches.

### 2.2 LONG-SPAN STEEL JOISTS

- A. Manufacture steel joists according to "Standard Specifications for Longspan Steel Joists, LH-Series and Deep Longspan Steel Joists, DLH-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members; of joist type and end and top-chord arrangements as follows:
  - 1. Joist Type: LH-series steel joists.
  - 2. End Arrangement: Underslung, unless otherwise indicated on Drawings.
  - 3. Top-Chord Arrangement: As indicated on Drawings.
- B. Provide holes in chord members where shown on Drawings for securing other items to steel joists and deduct area of holes from chord when calculating member strength.
- C. Camber long-span steel joists according to SJI's "Specifications", except as follows:
  - 1. Maximum camber to be limited to amount of deflection produced by 2/3 of the total dead load.
- D. Equip bearing ends of joists with manufacturer's standard beveled ends or sloped shoes if joist slope exceeds 1/4 inch per 12 inches.



## 2.3 PRIMERS

- A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.
- B. Standard Primer: SSPC-Paint 15, or manufacturer's standard shop primer complying with performance requirements in SSPC-Paint 15.

## 2.4 JOIST ACCESSORIES

- A. Bridging: Provide bridging anchors and number of rows of horizontal or diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span. Furnish additional erection bridging if required for stability.
  - 1. Provide bridging anchors for ends of bridging lines terminating at walls or beams.
  - 2. Provide additional bridging as required to stabilize joists when net uplift pressure is indicated on Drawings.
- B. Sealed Top and Bottom Chords: Provide top and bottom chords seal welded at steel joists in moist environment areas, to allow required surface preparation and painting of entire steel joist surface area in accordance with project requirements.
- C. Carbon-Steel Bolts and Threaded Fasteners: ASTM A 307, Grade A, carbon-steel, hex-head bolts and threaded fasteners; carbon-steel nuts; and flat, unhardened steel washers, complying with ANSI B27.2, Type B.
  - 1. Finish: Plain, uncoated, unless noted otherwise.
- D. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy hex steel structural bolts; ASTM A 563 heavy hex carbon-steel nuts; and ASTM F 436 hardened carbon-steel washers.
  - 1. Finish: Plain.
- E. Welding Electrodes: Comply with AWS standards.
- F. Furnish miscellaneous accessories including splice plates and bolts required by joist manufacturer to complete joist assembly.

## 2.5 CLEANING AND SHOP PAINTING

- A. Shop prime all steel joist members.
- B. For members to receive primer leave following locations unprimed:
  - 1. Surfaces to be field welded.
  - 2. Surfaces to be high-strength bolted with slip-critical connections.
- C. Surface Preparation: Remove loose scale, heavy rust and other foreign materials from fabricated joists and accessories. Prepare surfaces according to the following specifications and standards:



1. SSPC-SP 3, "Power Tool Cleaning," unless noted otherwise below.
2. ASTM D 6386, "Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting," for galvanized surfaces noted to be painted.

D. Priming:

1. Immediately after surface preparation, apply one coat of primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness as listed below. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  - a. Steel Joists to Receive Standard Primer: 1.0 mils.
2. Stripe paint corners, crevices, bolts, welds, and sharp edges.
3. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine supporting substrates, embedded bearing plates, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Do not install joists until supporting construction is in place and secured.
- B. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to approved shop drawings and to SJI's "Specifications," joist manufacturer's written recommendations, and requirements in this Section.
  1. Before installation, splice joists delivered to Project site in more than one piece.
  2. Space, adjust, and align joists accurately in location before permanently fastening.
  3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
- C. Field weld joists to supporting steel bearing plates and/or framework. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.



- D. Bolt joists to supporting steel framework in accordance with AISC and SJI specifications for type of joists used. Bolt joists to supporting steel framework using high-strength structural bolts. Comply with Research Council on Structural Connection's "Specification for Structural Joints Using ASTM A 325 or ASTM A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
- E. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.
- F. Field Modifications: Notify Architect if it becomes evident that field modifications to joists, joist girders and accessories are required during erection. Submit field modification proposed by joist manufacturer to Architect for review.
- G. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that joists and accessories are without damage or deterioration at time of Substantial Completion.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect joist materials, inspect field welds and bolted connections, and prepare test and inspection reports.
- B. Material Inspection: Inspect joists, joist girders and accessories for dents, bends and other damage that may compromise the structural integrity of the member.
  - 1. Contractor to remove, replace or repair joists found to be damaged to the satisfaction of the Architect at no additional cost to Owner.
- C. Visually inspect field welds according to AWS D1.1/D1.1M.
- D. Visually inspect bolted connections.
- E. Correct deficiencies in Work that test and inspection reports have indicated are not in compliance with specified requirements. Contractor is responsible for cost of corrective action and repeated inspection caused by deficient work or materials.

END OF SECTION 05 21 00



## **SECTION 05 50 00 - METAL FABRICATIONS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:

- 1. Steel framing and supports for mechanical and electrical equipment.
- 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
- 3. Metal ladders.
- 4. Loose bearing and leveling plates for applications where they are not specified in other Sections.

- B. Products furnished, but not installed, under this Section:

- 1. Loose steel lintels.
- 2. Anchor bolts indicated to be built into unit masonry.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Design ladders, including comprehensive engineering analysis by a qualified professional engineer (licensed in the State of New York), using performance requirements and design criteria indicated and certifying that the design is in compliance with the Building Code of New York.
- B. Structural Performance of Aluminum Ladders: Aluminum ladders shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section concurrently.



## 1.5 ACTION SUBMITTALS

- A. Product Data: For the following:
  - 1. Slotted channel framing.
  - 2. Ladders.
  - 3. Grout.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
  - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- C. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

## 1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

## 1.7 COORDINATION

- A. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

## PART 2 - PRODUCTS

### 2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

### 2.2 FERROUS METALS

- A. Steel Angles: ASTM A 572/A 572M, Grade 50.
- B. Steel Plates, and Bars: ASTM A 36/A 36M.
- C. Stainless-Steel Sheet, Strip, and Plate: ASTM A 240/A 240M or ASTM A 666, Type 304.



- D. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- E. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
  - 1. Size of Channels: 1-5/8 by 1-5/8 inches or as indicated on drawings.
  - 2. Material: Galvanized steel, ASTM A 653/A 653M, structural steel, Grade 33, with G90 coating; 0.108-inch nominal thickness.
  - 3. Fasteners and Fittings: Appropriate to situation and as recommend by manufacturer.

## 2.3 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- B. Aluminum Extrusions:
  - 1. ASTM B 221, Alloy 6061-T6.
  - 2. ASTM B 221, Alloy 6063-T5.
  - 3. ASTM B 221, Alloy 6063-T6.

## 2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
- B. Post-installed Anchors: Chemical anchors.
  - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5 unless otherwise indicated.
  - 2. Chemical Anchor Adhesives: Heavy duty, two component injectable adhesive designed to be dispensed using double chamber gun with mixing nozzle. Adhesives in capsule form will not be accepted.
    - a. Products for anchoring into concrete and grout-filled masonry: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) DeWalt; AC200+.
      - 2) Hilti, Inc.; HIT-HY 200R; HIT-HY 200A; HIT-ICE.
      - 3) ITW Redhead; A7+.
    - b. Products for anchoring into masonry other than grout-filled masonry: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) DeWalt; AC200+.
      - 2) Hilti, Inc.; HIT-HY 270.
      - 3) ITW Redhead; A7+.



## 2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Primer:
  - 1. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.
  - 2. Provide primers that comply with Division 09 Section "High Performance Coatings" and the following:
    - a. Interior Structural Steel: Refer to First Coat for Steel, Structural Steel in Interior High-Performance Coating Schedule: General Use.
    - b. Exposed Exterior Structural Steel: Refer to First Coat for Steel Substrates in Exterior High-Performance Coating Schedule.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with ASTM A780/A780M and compatible with paints specified to be used over it.
- D. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- E. Concrete: Comply with requirements in Division 03 Section "Miscellaneous Cast-in-Place Concrete".
- F. Isolation Barrier membrane: Self-adhering, high-temperature sheet, minimum 15 mils thick, consisting of cross-laminated polyethylene-film top surface laminated to layer of butyl adhesive, with release-liner backing; cold applied, in roll width to match or exceed width of area to be protected. Provide primer when recommended by membrane manufacturer.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Grace Construction Products, a unit of W. R. Grace & Co.; "Vycor Pro".
    - b. Equivalents meeting requirements of specified products.

## 2.6 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.



- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
  - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

## 2.7 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
  - 1. Fabricate units from slotted channel framing where indicated.
  - 2. Furnish inserts for units installed after concrete is placed.

## 2.8 METAL LADDERS

- A. General:
  - 1. Comply with ANSI A14.3 unless otherwise indicated.



B. Aluminum Ladders:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering custom ladder fabrications that may be incorporated into the Work include, but are not limited to, the following:
  - a. Roof Lines, Chittenango, NY, waterfrontdocks@gmail.com 315-450-7663
  - b. ACL Industries, Inc. (UPNOVR)
  - c. Precision Ladders, LLC.
2. The ladder manufacturer/fabricator is required to visit the site to perform field measurements prior to issuance of shop drawings and ladder fabrication.
3. OSHA and ANSI A14.3 compliant.
4. Mill finish aluminum.
5. 1,000 pound (minimum) loading capacity.
6. All connections to be fully welded.
7. Space siderails 24 inches apart unless otherwise indicated.
8. Siderails: Continuous extruded-aluminum channels or tubes by design, not less than 2-1/2 inches deep, 3/4 inch wide, and 1/8 inch thick. Design to span clear between top and bottom supports, with “walk-through” handrail extensions, fully welded end caps with bottom weep holes.
9. Rungs: Extruded-aluminum tubes, not less than 3/4 inch deep and not less than 1/8 inch thick, with ribbed slip resistant tread surfaces.
10. Fit rungs in centerline of siderails; fasten by fully welding.
11. Support each ladder at top and bottom and not more than 48” o.c. with fully welded aluminum brackets.
12. Provide vertical side rail handrail extension loops above fascia elevation as shown on Drawings.
13. Provide minimum 72-inch-high, hinged security door with padlock hasp at foot of exterior ladders to prevent unauthorized ladder use.
14. Provide fasteners as required by design, 3/8” stainless steel with washers at a minimum. – ladder to be attached as shown on Drawings.

2.9 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.



- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
  - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

#### 2.10 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

#### 2.11 LOOSE STEEL LINTELS

- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.
- B. Size loose lintels to provide bearing length at each side of openings equal to 1/12 of clear span but not less than 8 inches unless otherwise indicated.

#### 2.12 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

#### 2.13 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

#### 2.14 STEEL AND IRON FINISHES

- A. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to Division 09 Section "High Performance Coatings".
  - 1. For galvanized surfaces noted to be painted, comply with ASTM D 6386, "Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting".



- B. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
  - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
  - 1. Metal Fabrications: For all iron and steel items (except those noted below), shop prime with alkyd primer.
  - 2. Exterior Wall Metal Fabrications: For all iron and steel items occurring in exterior walls, shop prime with urethane primer.
  - 3. Exposed Exterior Metal Fabrications: For all iron and steel items exposed on the exterior, shop prime with zinc-rich primer
- D. Shop Priming: Immediately after surface preparation, apply one coat of primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness as listed below. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
  - 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

## 2.15 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Beginning installation constitutes Contractor's acceptance of substrates and conditions.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.



- D. Field Welding: Comply with the following requirements:
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- F. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- G. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
1. Extruded Aluminum: Isolation barrier membrane.

### 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.
- C. Install slotted channel framing with manufacturer recommended fasteners and fittings and follow manufacturer recommended instructions.

### 3.3 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
  1. Use nonshrink, nonmetallic grout in exposed locations unless otherwise indicated.
  2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.



### 3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 Section "High-Performance Coatings."
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 50 00



**SECTION 05 52 13 - TUBE RAILINGS (STAINLESS STEEL)****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Stainless-steel tube railings.
  - 2. Stainless-steel fittings, brackets, and other railing accessories.

**1.3 COORDINATION**

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

**1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

**1.5 ACTION SUBMITTALS**

- A. Product Data: For the following:
  - 1. Fasteners.
  - 2. Railing brackets, flanges, fittings, and anchors.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.
  - 1. Include sample radius bend and weld.



## 1.6 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

## 1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."
- C. Shop Conditions: Maintain shop conditions in a clean manner to prevent contamination of stainless-steel surfaces.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## 1.9 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

# PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
  - 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides minimum 1-1/2-inch clearance from inside face of handrail to finished wall surface.



## 2.3 STAINLESS STEEL

- A. Tubing: ASTM A269, Grade MT 316L.
- B. Castings: ASTM A743/A743M, Grade CF 8M or CF 3M.
- C. Sheet, Strip, Plate, and Flat Bar: ASTM A666, Type 316L.
- D. Bars and Shapes: ASTM A276, Type 316L.
- E. Woven-Wire Mesh Infill Panels: Intermediate-crimp, square pattern, 1-inch woven-wire mesh, made from not less than 0.120-inch-diameter stainless steel wire complying with ASTM A580/A580M, Type 304.

## 2.4 FASTENERS

- A. General: Provide the following:
  - 1. Stainless-Steel Railings: Type 316 stainless-steel fasteners.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:
  - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
  - 2. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
  - 3. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
  - 1. Material: Alloy Group 2 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.

## 2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.



1. For stainless-steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonexpanding, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

## 2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
  1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove flux immediately.
  4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Form Changes in Direction as Follows:
  1. As detailed.
  2. By flush bends or by inserting prefabricated flush-elbow fittings.
- J. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.



- K. Close exposed ends of railing members with prefabricated end fittings.
- L. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns.
- M. Brackets, Flanges, Fittings, and Anchors: Provide stainless-steel wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
  - 1. Concealed Anchorage Brackets (Cast Type):
    - a. Basis-of-Design Product: Subject to compliance with requirements, provide R & B Wagner, Inc.; Handrail Bracket 1729-2, or comparable product.
      - 1) Description: Cast round saddle with tapped mounting hole, brushed satin finish, Type 304.
        - a) Secure handrail to bracket with countersunk, tamper-resistant screws.
  - 2. Flanges:
    - a. Basis-of-Design Product: Subject to compliance with requirements, provide R & B Wagner, Inc.; Heavy Base Flange 1537T, or comparable product.
      - 1) Description: Flange for level surface, high luster finish, Type 316L.
        - a) Secure base flange to vertical post with set screw.
- N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- O. For railing posts set in concrete, provide stainless-steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.
- P. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

## 2.7 STAINLESS-STEEL FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Remove tool and die marks and stretch lines, or blend into finish.
- C. Stainless Steel Tubing Finishes:
  - 1. 180-Grit Polished Finish: Uniform, directionally textured finish.



D. Stainless Steel Sheet and Plate Finishes:

1. High Luster Finish: ASTM A480/A480M, No. 7.

- E. Passivating: When polishing is completed, passivate all surfaces, including areas sensitive to corrosion, including welded areas and adjacent heat-affected zones, perforated surfaces, etc. Follow passivating procedure established by standard industry best practices to thoroughly remove embedded foreign matter and leave surfaces chemically clean. Rinse thoroughly.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
  2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
  3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

### 3.3 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components, unless otherwise indicated. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.



### 3.4 ANCHORING POSTS

- A. Use stainless-steel sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, in two applications.

### 3.5 ATTACHING RAILINGS

- A. Return railing ends at walls to within 1/2 inch of wall; provide fully-welded end closure of railings, ground smooth.
- B. Return railing ends to posts; fully welded to posts, ground smooth.
- C. Attach railings to wall with wall brackets. Provide brackets with minimum 1-1/2 inch clearance from inside face of handrail and finished wall surface.
  - 1. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- D. Secure wall brackets to building construction as follows:
  - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
  - 2. For hollow masonry anchorage, use toggle bolts.

### 3.6 ADJUSTING AND CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water and wiping dry.

### 3.7 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit or provide new units.

END OF SECTION 05 52 13



## **SECTION 06 10 00 - ROUGH CARPENTRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Wood-preservative-treated lumber.
  - 2. Fire-retardant-treated materials, including plywood backing panels.
  - 3. Dimension lumber framing (non-treated).
  - 4. Miscellaneous lumber (non-treated).
  - 5. Glued-Laminated timber

#### **1.3 DEFINITIONS**

- A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Glued-Laminated timber: Wood members fabricated from 1" or 2" nominal thickness lumber glued face-to-face with the grain of all laminated approximately parallel longitudinally. Glued-Laminated timber is also referred to as glulam.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  - 1. Wood-Preservative-Treated Lumber: Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.



2. Fire-Retardant-Treated Materials:

- a. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
- b. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D5664.
- c. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D5516.

3. Dimension lumber framing (non-treated).

4. Miscellaneous lumber (non-treated).

5. Glue Laminated Lumber

6. Fasteners.

7. Metal framing anchors.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.
- B. Manufacturer
  1. Provide factory-glued timber units, produced by an AITC licensed firm, qualified to issue the AITC "Quality Inspected" Mark. Factory mark each piece of glued-laminated timber with the AITC Quality Inspected Mark. Place AITC Mark on timber surfaces which will not be exposed in completed work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.
- B. Keep laminated wood members as dry as possible during all phases. General contractor is responsible for protection of the construction. If jobsite storage is necessary, place members on blocking a minimum of 6" off the ground, away from ponding water, avoiding ground contact and separated with blocking to allow air circulation around each member. Cover glulam with a waterproof covering which will not allow ultraviolet ray penetration of the materials at the jobsite or at temporary storage area.



## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

### 2.2 Glued-Laminated timber

- A. Lumber shall comply with ANSI/AITC A190.1 and applicable lumber association standards cited therein required to achieve glued laminated timber requirements for allowable stress, appearance, fabrication limitations and species.
- B. Lumber species shall be Southern Pine.
- C. Appearance Grade shall be AITC Architectural
- D. Beams to have a minimum grading: 24F-V3

### 2.3 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:
  - 1. Hem-fir (north); NLGA.
  - 2. Mixed southern pine or southern pine; SPIB.
  - 3. Spruce-pine-fir; NLGA.
  - 4. Hem-fir; WCLIB or WWP A.
  - 5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWP A.



- E. Application: Treat items indicated on Drawings, and the following:
1. Wood nailers, blocking, and similar members in connection with flashing, vapor barriers, and waterproofing.
  2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
  3. Wood floor plates that are installed over concrete slabs-on-grade.

## 2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Treatment shall not promote corrosion of metal fasteners.
  2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201 at 92 percent relative humidity. Use where exterior type is not indicated.
  3. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664 and design value adjustment factors shall be calculated according to ASTM D6841.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Dimension Lumber Items: No. 2 grade.
1. Species:
    - a. Hem-fir (north); NLGA.
    - b. Southern pine; SPIB.
    - c. Douglas fir-larch; WCLIB or WWPA.
    - d. Spruce-pine-fir; NLGA.
    - e. Douglas fir-south; WWPA.
    - f. Hem-fir; WCLIB or WWPA.
    - g. Douglas fir-larch (north); NLGA.
    - h. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.



2. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. Equipment Backing Panels: Plywood, DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
- G. Application: Treat items indicated on Drawings, and the following:
1. Concealed blocking.
  2. Plywood backing panels.

## 2.5 DIMENSION LUMBER FRAMING (NON-TREATED)

- A. Joists, Rafters, and Other Framing: No. 1 grade.
1. Species:
    - a. Hem-fir (north); NLGA.
    - b. Southern pine; SPIB.
    - c. Douglas fir-larch; WCLIB or WWPA.
    - d. Spruce-pine-fir; NLGA.
    - e. Douglas fir-south; WWPA.
    - f. Hem-fir; WCLIB or WWPA.
    - g. Douglas fir-larch (north); NLGA.
    - h. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

## 2.6 MISCELLANEOUS LUMBER (NON-TREATED)

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
  2. Nailers.
  3. Furring.
  4. Grounds.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:
1. Hem-fir (north); NLGA.
  2. Mixed southern pine or southern pine; SPIB.
  3. Spruce-pine-fir; NLGA.
  4. Hem-fir; WCLIB or WWPA.
  5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- C. Concealed Boards: 19 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine or southern pine; No. 3 grade; SPIB.
  2. Hem-fir or hem-fir (north); Standard or No. 3 Common grade; NLGA, WCLIB, or WWPA.



3. Spruce-pine-fir (south) or spruce-pine-fir; Standard or No. 3 Common grade; NeLMA, NLGA, WCLIB, or WWP.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.7 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
  1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 or ICC-ES AC193 as appropriate for the substrate.
  1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.
  2. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

## 2.8 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Cleveland Steel Specialty Company.
  2. Simpson Strong-Tie Company Inc.
- B. Allowable design loads, as published by manufacturer, shall meet or exceed those of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.
  1. Use for interior locations unless otherwise indicated.



- D. Joist Hangers: U-shaped joist hangers with 2-inch-long seat and 1-1/4-inch-wide nailing flanges at least 85 percent of joist depth.

- 1. Thickness: 0.062 inch.

## 2.9 STEEL CONNECTIONS

- A. Provide fabricated steel connections to join laminated to laminated, and laminated to supports, exclusive of items embedded in concrete, masonry, welded to structural steel, or connected to stud walls.
- B. Steel work to conform to AISC Specifications.
- C. Bolts shall conform to ASTM A-307 and are primed painted.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Beginning installation constitutes Contractor's acceptance of substrates and conditions.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Do not splice structural members between supports unless otherwise indicated.
- G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
  - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- H. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.



- I. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. Table 2304.10.1, "Fastening Schedule," in New York State Building Code.
  - 2. ICC-ES evaluation report for fastener.
- K. Use steel common nails, bolts, lags and screws unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- L. Comply with AITC 111 "Recommended Practice For the Erection of Glulam", manufacturer's instructions, and approved shop drawings. Handle and temporarily support members to prevent damage. All members must be adequately braced until the complete structural system (all pertinent construction materials) has been installed. Correction of minor misfits and a reasonable amount of cutting, reaming, re-drilling, or alignment with drift pins will be considered a legitimate expense of erection.

### 3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
  - 1. Provide 1/4-inch vent space between each length of blocking.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

### 3.3 INSTALLATION OF WOOD FURRING

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

### 3.4 FIELD QUALITY CONTROL

- A. Special Inspections: Special Inspections are required for the work of this Section. Refer to Division 01 Section "Quality Requirements" and its attachments.

END OF SECTION 06 10 00



## **SECTION 06 10 26 - ROOFING ROUGH CARPENTRY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Wood-preservative-treated materials.

#### **1.3 DEFINITIONS**

- A. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Fasteners.
  - 2. Adhesives.
  - 3. Isolation barrier membrane.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.



## PART 2 - PRODUCTS

### 2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.
- C. Plywood: DOC PS 1, Exterior A-C, unless otherwise indicated.

### 2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC3b.
  - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- E. Application: Treat items indicated on Drawings, and the following:
  - 1. Wood nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.

### 2.3 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
  - 1. Provide fasteners of Type 304 stainless steel.
- B. Wood Screws for Attachment of Roof Blocking: Screws complying with ASME B18.6.1. Series 300 stainless steel, non-magnetic, torx or square drive, #10, length as required to provide minimum embedment of 1-1/2-inches into substrate.



- C. Screws for Attachment to Metal Deck: Self drilling screws complying with ASME B18.6.1. Series 300 stainless steel, non-magnetic, torx or square drive, #10, 2-1/2-inch length (unless otherwise noted).
- D. Screws for Attachment to Steel Angles or Framing: Self drilling screws complying with ASME B18.6.1. Series 300 stainless steel, non-magnetic, #12, 2-1/2-inch length minimum (unless otherwise noted).
  - 1. With Winged Reamers: Wings designed to break off at contact with steel.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency. Anchor expands by tightening or hammering a pin after insertion into pre-drilled hole.
  - 1. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

## 2.4 MISCELLANEOUS MATERIALS

- A. Adhesives: Low odor, low VOC (less than 2 percent by weight), high-strength polyurethane formulation complying with ASTM D3498 that is approved for use indicated by adhesive manufacturer.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Henkel Corporation; Loctite PL Premium Fast Grab, or a comparable product.
- B. Isolation Barrier Membrane: 40-mil-thick, self-adhering sheet consisting of rubberized asphalt laminated to a cross-laminated polyethylene film with release liner on adhesive side.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle Coatings & Waterproofing, Incorporated; CCW-705, or comparable product.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Beginning installation constitutes Contractor's acceptance of substrates and conditions.
- B. Set roofing rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit roofing rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.



- C. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- E. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous isolation barrier membrane between wood and metal decking.

### 3.2 INSTALLATION OF WOOD BLOCKING, NAILERS AND PLYWOOD

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
  - 1. Provide 1/4-inch vent space between each length of blocking.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with recommendations of FM Global Loss Prevention Data Sheet 1-49 and the following:
  - 1. Anchor bottom blocking to steel angles with minimum 3/8-inch stainless steel bolts with washers, at maximum 24 inches on center, or self-drilling screws in two rows, spaced not more than 24 inches on center and 6 inches from ends of blocking lengths.
  - 2. At locations where bottom blocking is to be attached directly to metal decking, provide isolation barrier membrane between deck and blocking, install wrinkle free. Apply primer if required by membrane manufacturer. Use primer rather than nails for installing membrane at low temperatures, overlap edges not less than 3-1/2 inches, roll laps with roller, cover membrane within 14 days. Attach bottom blocking with stainless steel self-drilling screws, penetrating metal decking at least 1 inch in two rows, spaced not more than 24 inches on center and 6 inches from ends of blocking lengths.
  - 3. Attach subsequent blocking to bottom blocking with stainless steel screws, penetrating at least 1-1/4 inches in two rows, spaced not more than 24 inches on center and 6 inches from ends of blocking lengths.
  - 4. Attach plywood to substrate with stainless steel screws spaced at 12 inches on center maximum. Where more than one layer of plywood is being attached, attach subsequent plywood to base layer of plywood/substrate with polyurethane construction adhesive beads spaced at 6 inches on center maximum and stainless-steel screws, penetrating at least 3/4 inch in two rows, spaced not more than 12 inches on center and within 4 inches from end of panel lengths.



5. At outside building corners, locate fasteners at 12 inches on center and 6 inches from corner, unless closer spacing is required to meet minimum 100 lb per fastener withdrawal force in any direction, or to comply with FM 1-49 recommendations.

END OF SECTION 06 10 26



**SECTION 07 01 50.19 - PREPARATION FOR RE-ROOFING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Roof tear-off.
  - 2. Partial roof tear-off.
  - 3. Removal of base flashings.

**1.3 DEFINITIONS**

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.
- B. Existing Membrane Roofing System: Built-up asphalt, Spray-Polyurethane Foam (SPF) membrane roofing systems, membranes, roof insulation, surfacing, and components and accessories between deck and roofing membrane.
- C. Roof Tear-Off: Removal of existing membrane roofing system from deck.
- D. Partial Roof Tear-Off: Removal of a portion of existing SPF membrane roofing system, including underlying roofing materials from deck.
- E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.
- F. Existing to Remain: Existing items of construction that are not indicated to be removed.

**1.4 SUBMITTALS, GENERAL**

- A. General: Submit all informational submittals required by this Section concurrently.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.



## 1.6 CLOSEOUT SUBMITTALS

- A. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Installer of new membrane roofing system or SPF roofing system, licensed to perform asbestos abatement in the State or jurisdiction where Project is located.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning membrane roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Reroofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner; Architect; testing and inspecting agency representative; roofing system manufacturer's representatives; roofing systems Installers including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing systems including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing system tear-off and replacement including, but not limited to, the following:
    - a. Reroofing preparation, including membrane roofing or SPF roofing system manufacturer's written instructions.
    - b. Transition details between SPF and membrane roof systems.
    - c. Temporary protection requirements for existing roofing system that is to remain during and after installation.
    - d. Existing roof drains and roof drainage during each stage of reroofing, and roof drain plugging and plug removal requirements.
    - e. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to make progress.
    - f. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
    - g. Structural loading limitations of deck during reroofing.
    - h. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.
    - i. HVAC shutdown and sealing of air intakes.
    - j. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
    - k. Asbestos removal and discovery of asbestos-containing materials.
    - l. Governing regulations and requirements for insurance and certificates if applicable.
    - m. Existing conditions that may require notification of Architect before proceeding.



## 1.8 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
- B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- D. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
  - 1. A roof moisture survey of existing membrane roofing system is available for Contractor's reference and attached to specification Section 07 57 50 – Coated Foamed Roofing Restoration.
  - 2. The results of an analysis of test cores from existing membrane roofing system are available for Contractor's reference and indicated on the Drawings.
- E. Handle and store materials and place equipment in a manner to avoid deflection of deck, overloading, and possible disturbance to the building structure.
- F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
- G. Hazardous Materials: Present in building to be reroofed. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except according to procedures specified elsewhere in the Contract Documents.
  - 3. Coordinate with hazardous material remediation subcontractor to prevent water from entering existing roofing system or building.

## PART 2 - PRODUCTS

### 2.1 AUXILIARY REROOFING MATERIALS

- A. General: Auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing and new SPF and membrane roofing systems.



## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect existing membrane roofing system that is indicated not to be reroofed.
  - 1. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
  - 2. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
- B. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- C. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
  - 1. Test, verify and confirm existing roof drains are operational and document conditions at each roof drain in writing prior to beginning work.
- D. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
  - 1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.
- E. Verify that rooftop utilities and service piping have been shut off before beginning the Work.
- F. Beginning reproofing preparation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Remove loose aggregate from aggregate-surfaced built-up bituminous roofing using a power broom. Remove loose granules from granular-surfaced Spray Polyurethane Foam roofing using vacuum.
- C. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the deck.
  - 1. Remove roof insulation, cover and substrate boards, vapor retarder membranes, wood blockings, fasteners, flashings, fascias, etc.



2. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry. Remove unadhered bitumen and felts and wet felts.
  3. Remove excess asphalt from steel deck. A maximum of 15 lb/100 sq. ft. of asphalt is permitted to remain on steel decks.
  4. Remove fasteners from deck.
- D. Partial Roof Tear-Off: Where indicated, remove existing roofing membrane and other membrane roofing system components down to the deck.
1. Remove roof insulation and underlying roofing materials between (SPF) roof insulation and roof deck.
  2. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry. Remove unadhered bitumen and felts and wet felts.
  3. Remove excess asphalt from steel deck. A maximum of 15 lb/100 sq. ft. of asphalt is permitted to remain on steel decks.
  4. Remove fasteners from deck.

### 3.3 DECK PREPARATION

- A. Inspect deck after tear-off, or partial tear-off of membrane roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed with installation until directed by Architect.
- C. If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until directed by Architect.

### 3.4 EXISTING BASE FLASHINGS

- A. Remove existing base flashings around parapets, curbs, walls, and penetrations.
  1. Clean substrates of contaminants such as SPF and coatings, asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are indicated to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish as specified in Division 07 Section "Roof Specialties."
- C. Inspect parapet sheathing for deterioration and damage. If parapet sheathing has deteriorated, immediately notify Architect.



### 3.5 DISPOSAL

- A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
  - 1. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 07 01 50.19



## **SECTION 07 21 00 - THERMAL INSULATION**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Extruded polystyrene foam-plastic board.
  - 2. Glass-fiber blanket.
  - 3. Insulation for miscellaneous voids.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Adhesive for bonding insulation.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Extruded polystyrene board, Type IV, 25-psi.
  - 2. Glass-fiber blanket, unfaced.
  - 3. Closed-cell spray polyurethane foam.
  - 4. Insulation for miscellaneous voids.
- C. Sustainable Design Submittals:
  - 1. Product Data: For adhesives, indicating VOC content.

#### 1.5 QUALITY ASSURANCE

- A. Identification: Identify product R-values with manufacturer’s markings, or certification, in accordance with requirements of building Code in effect for the Project.



## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
  - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
  - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
  - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

## PART 2 - PRODUCTS

### 2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Extruded Polystyrene Board, Type IV: ASTM C 578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. DuPont; Styrofoam Brand Square Edge XPS Foam Insulation (Reduced GWP).
    - b. Owens Corning; Foamular NGX 250 Extruded Polystyrene (XPS) Insulation (Square Edge).
  - 2. Thermal Resistance: R-value of 5.0 per inch.
  - 3. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

### 2.2 GLASS-FIBER BLANKET

- A. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. CertainTeed Corporation; Sustainable Insulation Fiber Glass Building.
    - b. Owens Corning; EcoTouch Pink Fiberglas Insulation.



## 2.3 ACCESSORIES

### A. Insulation for Miscellaneous Voids:

1. Spray Polyurethane Foam Insulation for Miscellaneous Voids: ASTM C 1029, Type II, closed cell, minimum density of 1.75 lb/cu. ft. and minimum aged R-value at 1-inch thickness of 6.0 deg F x h x sq. ft./Btu at 75 deg F, with maximum flame-spread and smoke-developed indexes of 25 and 400, respectively, per ASTM E 84.
  - a. Basis-of-Design Product: Subject to compliance with requirements, provide DuPont; Froth-Pak Foam Insulation, or comparable product.

### B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

1. Adhesives shall have a VOC content of 70 g/L or less.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of the Work.
- B. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation, or that interfere with insulation attachment.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.
- E. Install insulation so that manufacturer's R-value mark is readily observable, in accordance with requirements of building Code in effect for the Project.



### 3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
  - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  - 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
  - 1. Spray Polyurethane Insulation for Miscellaneous Voids: Apply according to manufacturer's written instructions.

### 3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07 21 00



## **SECTION 07 27 26 - FLUID-APPLIED MEMBRANE AIR BARRIERS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Vapor-retarding, fluid-applied air barriers.

#### **1.3 DEFINITIONS**

- A. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- B. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- C. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

#### **1.5 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.



1. Accessory materials.
  2. Primers.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
1. High-build, vapor-retarding air barrier.
- C. Sustainable Design Submittals:
1. **Product Data: For coatings, indicating VOC content.**
- D. Shop Drawings: For air-barrier assemblies.
1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.
  2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
  3. Include details of interfaces with other materials that form part of air barrier.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates, Compatibility: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.
- C. Product Certificates, Fire Propagation Characteristics: From a qualified testing agency, documenting that air barrier system as a component of the indicated wall assembly has been tested and passed NFPA 285.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.

#### 1.10 FIELD CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.



1. Protect substrates from environmental conditions that affect air-barrier performance.
2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.
- B. VOC Content: 100 g/L or less.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested according to ASTM E2357.

### 2.3 HIGH-BUILD AIR BARRIERS, VAPOR RETARDING

- A. High-Build, Vapor-Retarding Air Barrier: Synthetic polymer membrane with an installed dry film thickness, according to manufacturer's written instructions, of 40 mils or thicker over smooth, void-free substrates.
  1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. Carlisle Coatings & Waterproofing; Fire Resist Barritech NP.
    - b. Henry Company; Air-Bloc 32MR.
    - c. Meadows, W. R., Inc.; Air-Shield LSR.
    - d. Tremco, Inc., Commercial Sealants and Waterproofing Division, an RPM company; ExoAir 130.
  2. Physical and Performance Properties:
    - a. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. pressure difference; ASTM E2178.
    - b. Vapor Permeance: Maximum 0.1 perm; ASTM E96/E96M, Desiccant Method.
    - c. Ultimate Elongation: Minimum 300 percent; ASTM D412, Die C.
    - d. Adhesion to Substrate: Minimum 16 lbf/sq. in. when tested according to ASTM D4541.



- e. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- f. UV Resistance: Can be exposed to sunlight for 90 days according to manufacturer's written instructions.

## 2.4 ACCESSORY MATERIALS

- A. Requirement: Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.
- B. Primer: Liquid waterborne primer recommended for substrate by air-barrier material manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
  - 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
  - 2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
  - 3. Verify that substrates are visibly dry and free of moisture.
  - 4. Verify that masonry joints are flush and completely filled with mortar.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.



- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.
- H. Bridge discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

### 3.3 ACCESSORIES INSTALLATION

- A. Install accessory materials according to air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
  - 1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
  - 2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
  - 3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
  - 4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
- B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.
- C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.
- D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.
  - 1. Transition Strip: Roll firmly to enhance adhesion.



- F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.
- G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- H. Seal top of through-wall flashings to air barrier with an additional 6-inch-wide, transition strip.
- I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- J. Correct punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond corrected areas in strip direction.

### 3.4 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

- A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
  - 1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
  - 2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
  - 3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
- B. High-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply air-barrier material in full contact around protrusions such as masonry ties.
  - 1. Vapor-Retarding, High-Build Air Barrier: Total dry film thickness not less than 40 mils.
- C. Do not cover air barrier until it has been tested and inspected by testing agency.
- D. Correct deficiencies in or remove air barrier that does not comply with requirements; correct substrates and reapply air-barrier components.

### 3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections.
- B. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:
  - 1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
  - 2. Air-barrier dry film thickness.



3. Continuous structural support of air-barrier system has been provided.
  4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
  5. Site conditions for application temperature and dryness of substrates have been maintained.
  6. Maximum exposure time of materials to UV deterioration has not been exceeded.
  7. Surfaces have been primed, if applicable.
  8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
  9. Termination mastic has been applied on cut edges.
  10. Strips and transition strips have been firmly adhered to substrate.
  11. Compatible materials have been used.
  12. Transitions at changes in direction and structural support at gaps have been provided.
  13. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
  14. All penetrations have been sealed.
- C. Tests: As determined by testing agency from among the following tests:
1. Air-Leakage-Location Testing: Air-barrier assemblies will be tested for evidence of air leakage according to ASTM E1186, chamber pressurization or depressurization with smoke tracers or ASTM E1186, chamber depressurization using detection liquids.
  2. Air-Leakage-Volume Testing: Air-barrier assemblies will be tested for air-leakage rate according to ASTM E783.
  3. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate according to ASTM D4541 for each of installed air barrier or part thereof.
- D. Air barriers will be considered defective if they do not pass tests and inspections.
1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
  2. Remove and replace deficient air-barrier components for retesting as specified above.
- E. Correct damage to air barriers caused by testing; follow manufacturer's written instructions.
- F. Prepare test and inspection reports.



### 3.6 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
  - 1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after correcting and preparing the overexposed materials according to air-barrier manufacturer's written instructions.
  - 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 07 27 26



## **SECTION 07 53 23 - EPDM ROOFING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Adhered ethylene-propylene-diene-terpolymer (EPDM) roofing system.
  - 2. Roof insulation.
  - 3. Cover board.
  - 4. Walkways.

#### **1.3 DEFINITIONS**

- A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Construction Manager, testing and inspecting agency representative, roofing Installer, roofing Installer's superintendent, roofing system manufacturer's technical representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
  - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress.
  - 4. Examine deck substrate conditions and finishes, including flatness and fastening.
  - 5. Review structural loading limitations of roof deck during and after roofing.
  - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.



7. Review temporary protection requirements for roofing system during and after installation.
8. Review building occupancy, safety, HVAC and equipment shut-downs, noise levels and other items that will affect the building occupants and those on or near the site.
9. Review roof observation and repair procedures after roofing installation.

## 1.5 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals (except field quality-control reports) required by this Section concurrently.

## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1. EPDM sheet.
2. Sheet flashing.
3. Bonding adhesive.
4. Adhesive/primer.
5. Seaming material.
6. Lap sealant.
7. Water cutoff mastic.
8. Metal termination bars.
9. Fasteners.
10. Miscellaneous accessories.
11. Polyisocyanurate board insulation.
12. Tapered insulation.
13. Insulation fasteners.
14. Insulation adhesive.
15. Cover board.
16. Flexible walkways.

- B. Sustainable Design Submittals:

1. Product Data: For applicable adhesives and sealants, indicating VOC content.

- C. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout, R-values and thickness of insulation.
2. Base flashings and membrane terminations.
3. Flashing details at penetrations.
4. Tapered insulation, thickness, R-values and slopes.
5. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
6. Walkway pad layout.



D. Samples: For the following products:

1. Roof membrane and flashings.
2. Roof insulation.
3. Cover board.
4. Walkway pads.

E. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

F. Sample Warranties: For manufacturer's special warranties and special Project warranties.

## 1.7 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, identifying all roof system components and certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  - a. Submit evidence of complying with performance requirements.
2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

B. Field quality-control reports.

## 1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

B. Warranty: Executed special warranties and special Project warranties.

## 1.9 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed listed in FM Approvals' RoofNav listed in SPRI's Directory of Roof Assemblies for roofing system identical to that used for this Project.

1. Manufacturer's Technical Representative: A non-sales technical representative who shall, at a minimum:
  - a. Participate in the Preinstallation Roofing Conference.
  - b. Witness start of roofing membrane installation.
  - c. Inspect the roofing membrane installation when work is approximately 50 percent complete to ascertain that procedures being followed are proper and to determine whether any corrective work will be required.



- d. Inspect the roofing membrane installation at completion to determine whether any corrective work will be required prior to issuing the warranty. Notify the Owner and Architect a minimum of 72 hours before said inspection.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty, and has successfully completed a minimum of three similar-sized projects in the last five years.
  - 1. Installer's Superintendent Qualifications: An experienced superintendent who is trained and approved by roofing system manufacturer, to oversee installation on-site of roofing system at all times roofing work is in progress.
  - 2. Provide adequate number of experienced workers regularly engaged in this type of work who are skilled in the application techniques of the materials specified.
- C. Identification: Identify product R-values with manufacturer's markings, or certification, in accordance with requirements of building Code in effect for the Project.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
  - 1. Do not install materials that are wet or moisture damaged; remove from Project site.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

#### 1.11 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Proceed with work such that recently completed roof areas are not subjected to construction traffic. Protect recently completed roof areas and inspect for possible damage.



## 1.12 COORDINATION

- A. Coordinate construction operations on or adjacent to roof, included in different Sections, which depend on each other for proper installation, connection, and operation.

## 1.13 WARRANTY

- A. Special Warranty: Manufacturer's total system "edge-to-edge" warranty, without monetary limitation, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Pro-rated warranties are not acceptable.
  - 1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, and other components of roofing system.
  - 2. Special warranty includes roof specialties specified in Division 07 Section "Roof Specialties."
  - 3. Special warranty includes coverage for wind damage sustained up to wind speed requirements specified in "Performance Requirements" Article.
  - 4. Special warranty includes coverage for hail resistance.
  - 5. Warranty Period: 20 years (30 years by Alternate) from Date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, and walkway products, against leaks and faulty or defective materials and workmanship, and to repair or replace work, without monetary limitation, for the following warranty period:
  - 1. Warranty Period: 2 years from Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.
  - 1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
  - 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.



- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience. Materials shall comply with the Building Code of New York State.
- C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures calculated according to the requirements of the Building Code of New York State, which references ASCE/SEI 7:
  - 1. Wind Speed: As indicated on Drawings (see Structural Drawings).
  - 2. Wind Uplift Pressures: As indicated on Drawings (see Structural Drawings).
- D. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.
  - 1. Fire/Windstorm Classification: Class 1A-90.
  - 2. Hail-Resistance Rating: FM Global Property Loss Prevention Data Sheet 1-34 MH.
- E. SPRI's Directory of Roof Assemblies Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in SPRI's Directory of Roof Assemblies for roof assembly identical for that specified for this Project.
- F. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

## 2.2 MANUFACTURERS

- A. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

## 2.3 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

- A. EPDM Sheet: ASTM D4637/D4637M, Type I, nonreinforced, fire-retardant EPDM sheet.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Incorporated.
    - b. Firestone Building Products.
    - c. Johns Manville; a Berkshire Hathaway company.
  - 2. Thickness: 60 mils, (90 mils by Alternate) nominal.



3. Sheet Width: Maximum allowable for applicable installation.
4. Exposed Face Color: Black.

## 2.4 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
  1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
  2. Adhesives and sealants on the interior side of weather barrier shall comply with the following limits for VOC content:
    - a. Plastic Foam Adhesives: 50 g/L.
    - b. Panel Adhesives: 50 g/L.
    - c. Multipurpose Construction Adhesives: 70 g/L.
    - d. Fiberglass Adhesives: 80 g/L.
    - e. Other Adhesives: 250 g/L.
    - f. Single-Ply Roof Membrane Sealants: 450 g/L.
    - g. Nonmembrane Roof Sealants: 300 g/L.
    - h. Sealant Primers for Nonporous Substrates: 250 g/L.
    - i. Sealant Primers for Porous Substrates: 775 g/L.
- B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.
- C. Bonding Adhesive: Manufacturer's standard, low-VOC type.
- D. Adhesive/Primer: Manufacturer's standard, low-VOC type.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle SynTec Incorporated; Cav-Grip III Low-VOC Adhesive/Primer, or comparable product.
- E. Membrane Cleaner: Manufacturer's standard.
- F. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 6-inch-wide minimum, butyl splice tape with release film.
  1. At Contractor's option, seam tape may be factory-applied type.
- G. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.
- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- I. Metal Termination Bars: Manufacturer's standard, predrilled at 6-inch centers aluminum bars, approximately 1 by 1/8 inch thick; with sealant ledge.
  1. Fasteners: Series 300 stainless steel drive pin fasteners for masonry substrate embedment, Series 300 stainless steel screw-type fasteners at wood substrate embedment.



- J. Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
  - 1. Fasteners at Wood-Preservative-Treated Lumber: Screws complying with ASME B18.6.1. Series 300 stainless steel, non-magnetic, torx or square drive, #10, length as required to provide minimum embedment of 1-1/2-inches into substrate.
- K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

## 2.5 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer, and in compliance with “Performance Requirements” Article.
  - 1. Minimum Total System R-Value: 30.
- B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 2, Grade 2, glass-fiber mat facer on both major surfaces.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Incorporated; SecurShield Polyiso.
    - b. Firestone Building Products; ISOGARD CG.
    - c. Johns Manville; a Berkshire Hathaway company; ENRGY 3 CGF.
  - 2. Provide insulation tested as part of an assembly that satisfactorily passes UL 1256.
  - 3. Compressive Strength: 20 psi.
  - 4. Size: 48 by 48 inches, for adhered installation and 48 by 96 inches, for mechanical attachment.
  - 5. Thickness:
    - a. Base Layer: Not less than 2.4 inches.
    - b. Upper Layer: Not less than 2.4 inches.
- C. Tapered Insulation: Provide factory-tapered insulation boards.
  - 1. Material: Match roof insulation.
  - 2. Minimum Thickness: 1/2 inch.
  - 3. Slope:
    - a. Roof Field: 1/8 inch per foot unless otherwise indicated on Drawings.



- b. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.
- 4. Provide fiber board tapered edge strips to transition from 1/2-inch to 0-inch.

## 2.6 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.
- B. Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
  - 1. Bead-applied, low-rise, multicomponent urethane adhesive.
  - 2. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Incorporated; FAST Dual Cartridge Adhesive.
    - b. Firestone Building Products; I.S.O. Twin Pack Insulation Adhesive.
    - c. Johns Manville; a Berkshire Hathaway company; JM Two-Part Urethane Insulation Adhesive.
- D. Cover Board: ASTM C1289 Type II, Class 4, Grade 1, 1/2-inch-thick polyisocyanurate, with a minimum compressive strength of 80 psi.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle SynTec Incorporated; SecurShield HD Polyiso.
    - b. Firestone Building Products; Isogard HD Cover Board.
    - c. Johns Manville; a Berkshire Hathaway company; ProtectoR HD.

## 2.7 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads, not less than 0.30-inch thick and acceptable to roofing system manufacturer.
  - 1. Size: Approximately 30 by 30 inches.

## 2.8 ROOF INFORMATION DECALS

- A. Roofing manufacturer's roof information decal including the following information clearly printed in permanent ink:
  - 1. Name of roofing manufacturer.
  - 2. Name of roofing installer.



3. Type of roofing system including membrane type and thickness.
4. Date of substantial completion.
5. Manufacturer's project identification number.
6. Roofing system warranty duration.
7. Telephone number for reporting warranty-related questions.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
  1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
  2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  3. Verify that steel roof deck is solid and securely attached.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

### 3.3 INSTALLATION OF ROOFING, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions, in compliance with "Performance Requirements" Article assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.
- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

### 3.4 INSTALLATION OF INSULATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.



- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Insulation Installation, General:
1. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  2. Make joints between adjacent insulation boards not more than 1/8 inch in width.
  3. Fill gaps exceeding 1/8 inch with insulation.
  4. Cut and fit insulation within 1/8 inch of nailers, projections, and penetrations.
  5. Keep manufacturer's R-value markings readily observable in accordance with building Code in effect for Project.
  6. Construct tapered sumps at roof drain locations as shown on Drawings.
  7. Install fiber board tapered edge strips to transition from 1/2-inch to 0-inch.
  8. Trim insulation so that water flow is unrestricted.
- D. Installation Directly Over Metal Decking:
1. Mechanically Attached Base Layer: Install base layer of insulation with end joints staggered not less than 12 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.
    - a. Locate end joints over crests of decking.
    - b. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.
      - 1) Fasten insulation to resist specified uplift pressure in compliance with "Performance Requirements" Article; minimum quantity: one fastener per 2 square feet at field and perimeter, one fastener per square foot at corners.
      - 2) Fasten into top flutes only; with fastener length not to exceed elevation of bottom flute.
  2. Adhered Upper Layers: Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
    - a. Stagger end joints within each layer not less than 24 inches in adjacent rows.
    - b. Adhere each layer of insulation to substrate using adhesive in compliance with "Performance Requirements" Article and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
      - 1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, applied at a maximum of 4 inches on center at all field, perimeter, and corner roof areas, firmly pressing and maintaining insulation in place.



- 2) When installing the adhesive, do not allow the adhesive installation pattern to exceed the width of the board being installed. Exceeding the width of the roof board may cause an uneven application of the adjacent board due to the rising adhesive. Remove any excess adhesive from adjacent surfaces immediately prior to rising and curing.
- 3) Walk the boards into the adhesive and roll with a 30-inch wide, 150-pound weighted steel roller to ensure full embedment.

E. Installation Over Concrete, Gypsum or Other Types of Plank Decks:

1. Adhered Base Layer: Thoroughly clean and prime deck surface, install base layer of insulation with joints staggered not less than 24 inches in adjacent rows.
  - a. Adhere base layer of insulation to concrete, gypsum or plank deck in compliance with “Performance Requirements” Article and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - 1) Set insulation in ribbons of bead-applied insulation adhesive, applied at a maximum of 4 inches on center at all field, perimeter, and corner roof areas, firmly pressing and maintaining insulation in place.
    - 2) When installing the adhesive, do not allow the adhesive installation pattern to exceed the width of the board being installed. Exceeding the width of the roof board may cause an uneven application of the adjacent board due to the rising adhesive. Remove any excess adhesive from adjacent surfaces immediately prior to rising and curing.
    - 3) Walk the boards into the adhesive and roll with a 30-inch wide, 150-pound weighted steel roller to ensure full embedment.
2. Adhered Upper Layers: Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
  - a. Stagger end joints within each layer not less than 24 inches in adjacent rows.
  - b. Adhere each layer of insulation to substrate using adhesive in compliance with “Performance Requirements” Article and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - 1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, applied at a maximum of 4 inches on center at all field, perimeter, and corner roof areas, firmly pressing and maintaining insulation in place.
    - 2) When installing the adhesive, do not allow the adhesive installation pattern to exceed the width of the board being installed. Exceeding the width of the roof board may cause an uneven application of the adjacent board due to the rising adhesive. Remove any excess adhesive from adjacent surfaces immediately prior to rising and curing.



- 3) Walk the boards into the adhesive and roll with a 30-inch wide, 150-pound weighted steel roller to ensure full embedment.

### 3.5 INSTALLATION OF COVER BOARDS

- A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
  1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks. Cut or score boards at angle changes to avoid bridging.
  2. Cut and fit cover board tight to nailers, projections, and penetrations.
  3. Adhere cover board to substrate using adhesive in compliance with "Performance Requirements" Article and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    - a. Set cover board in ribbons of bead-applied insulation adhesive, applied at a maximum of 4 inches on center at all field, perimeter, and corner roof areas, firmly pressing and maintaining insulation in place.
    - b. When installing the adhesive, do not allow the adhesive installation pattern to exceed the width of the board being installed. Exceeding the width of the cover board may cause an uneven application of the adjacent board due to the rising adhesive. Remove any excess adhesive from adjacent surfaces immediately prior to rising and curing.
    - c. Walk the boards into the adhesive and roll with a 30-inch wide, 150-pound weighted steel roller to ensure full embedment.

### 3.6 INSTALLATION OF ADHERED ROOF MEMBRANE

- A. Thoroughly clean substrate of all debris, projections, and substances detrimental to membrane installation, including stray projections of adhesive.
- B. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.
- C. Unroll roof membrane and allow to relax before installing.
- D. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- E. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- F. Bonding Adhesive: Apply 100 percent coverage to substrate and underside of roof membrane at rate required by manufacturer and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.



- G. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.
- H. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- I. Apply pressure to the membrane surface in accordance with manufacturer's instructions to obtain maximum contact between the membrane and substrate.
- J. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.
  - 1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
  - 2. Apply lap sealant and seal exposed edges of roofing terminations.
  - 3. At Contractor's option, use manufacturer's factory-applied seam tape installation system.
- K. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.
- L. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

### 3.7 INSTALLATION OF BASE FLASHING

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

### 3.8 INSTALLATION OF WALKWAYS

- A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.
  - 1. Install flexible walkways at the following locations:
    - a. Perimeter of each rooftop unit.
    - b. Top and bottom of each roof access ladder.
    - c. Roof access doors.
    - d. Locations indicated on Drawings.
    - e. As required by roof membrane manufacturer's warranty requirements.



2. Adhere walkway products to substrate according to roofing system manufacturer's written instructions.

### 3.9 ROOF INFORMATION DECAL INSTALLATION

- A. Adhesively attach roofing manufacturer's Roof Information Decal at all roof access points (i.e. inside face of hatches, doors, etc. leading to the roof).

### 3.10 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
- B. Correct or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

### 3.11 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, correct substrates, and correct or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Thoroughly clean all roof and ground areas of dust, debris, excess materials and equipment.
- D. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 53 23



**SECTION 07 57 50 - COATED FOAMED ROOFING RESTORATION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY****A. Section Includes:**

1. Examination of existing conditions.
2. Preparation for restoration:
  - a. Areas for removal and replacement.
  - b. Areas for correcting poor drainage.
  - c. Areas for recoating.
3. Spray-applied, coated, polyurethane foam roofing.
4. Substrate board.
5. Polyurethane foam.
6. Silicone coatings.
7. Accessory materials including sealants, reinforcement and walkways.

**1.3 DEFINITIONS**

- A. Applicator: A qualified person employed to apply spray-applied, coated, polyurethane foam roofing.
- B. Installer: A qualified firm contracted to install spray-applied, coated, polyurethane foam roofing.
- C. Removal and Replacement (minimum 12" square area): Removal of existing coated foamed roofing system and underlying roofing materials down to deck and replacement with coated foamed roofing restoration system to elevation as required to eliminate ponding and create positive drainage. Dispose items of existing construction off-site. A partial removal of the existing roof system is required. Roof areas requiring removal shall be as identified by roof inspection and the roof scan drawings attached to this section.



- D. Recoating With Additional Foam Thickness to Correct Poor Drainage/Ponding: Removal of existing coating and scarify foam below coating and replacement with additional foam and silicone coating system. Coating removal and replacement includes removal and replacement of up to 1-inch depth of existing polyurethane foam. Roof areas requiring additional foam thickness to correct drainage/ponding are identified on the drawings. Additional removal and replacement as described herein may also be necessary. Dispose items of existing construction off-site.
- E. Recoating: Preparation of existing coating and recoating with silicone coating system. Coating preparation includes removal of all loose materials, foreign materials, oils, algae, blisters and delaminated or non-compatible coatings, etc. from roof surface, repairing foam substrate and providing reinforcing mesh at all cracks, seams and expansion joint locations.
- F. Reinforcement: Flexible polyester or fiberglass reinforcing mat of weight, type, and composition recommended in writing by coating manufacturer for embedment in liquid coating.
- G. Self-Sealing Tape: Butyl rubber compound with an absorbent polyester fleece face, flexible, moldable product applied to prepared substrates used to seal surfaces and prevent moisture intrusion.
- H. Walkways: Coating and granule system approved by coating manufacturer.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, Construction Manager, testing and inspecting agency representative, coated foamed roofing Installer, coated foamed roofing Installer's superintendent, coated foamed roofing system manufacturer's technical representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
  - 2. Review methods and procedures related to coated foamed roofing, including, but not limited to, the following:
    - a. Previously-conducted moisture survey.
    - b. Areas of poor drainage requiring correction.
    - c. Existing conditions that may require Architect notification before proceeding.
    - d. Load limitations on in-place roofing.
    - e. Construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress.
    - f. Surface preparation including removal of blisters and delaminated coatings.
    - g. Locations requiring reinforcement.
    - h. Minimum curing period.
    - i. Forecasted weather conditions.
    - j. Special details including reinforcing mesh, self-sealing tape, sheet flashings, sealants and sealant filled 'V' groove detail.
    - k. Temporary protection requirements for coated foamed roofing work during and after installation.



- l. Building occupancy, HVAC and equipment shut-downs, noise levels, and other items that may affect building occupants and those on or near the site.
- m. Corrective measures.

## 1.5 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals (except field quality-control reports) required by this Section concurrently.

## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties.
  1. Substrate board.
  2. Polyurethane foam.
  3. Silicone coatings.
  4. Mineral granules.
  5. Primers.
  6. Silicone sealants.
  7. Reinforcing mesh.
  8. Self-sealing tape.
  9. Walkways.
- B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
  1. Locations of each type of restoration work.
  2. Layout of poor drainage/ponding areas requiring correction.
  3. Reinforcing locations and details at expansion joints, cracks and wall base flashings.
  4. Flashing details at terminations, edges and penetrations.
  5. Walkway layout.
- C. Samples: For each type of exposed product, finish, and color.
  1. Include Samples of accessory materials and accessories involving color and finish selection.
- D. Sample Warranties: For special warranty and special Project warranty.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Performance Requirement Certificate: Signed by coated foamed roofing manufacturer, identifying all roof system components and certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  1. Submit evidence of complying with performance requirements.



- B. Special Warranty Certificate: Signed by coated foamed roofing manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.
- C. Field quality-control reports.

#### 1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For coated foamed roofing to include in maintenance manuals.
- B. Executed Warranties: For special warranty and special Project warranty.

#### 1.9 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified coated-foamed-roofing installer who is approved, authorized, or licensed by coating manufacturer for installation of coating manufacturer's product over polyurethane foam.
  - 1. Engage an installer who participates in and who has fulfilled requirements of the SPFA program for company accreditation as "SPFA PCP Accredited Company Roofing," with individual applicator certification for personnel assigned to work on Project.
- B. Comply with recommendations in SPFA AY-104.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site with manufacturer's name, product brand name and type, date of manufacture, shelf life, and directions for storing and mixing with other components.
- B. Store materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by manufacturer.
- C. Remove and replace material that cannot be applied within its stated shelf life.

#### 1.11 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.
  - 1. A roof moisture survey of existing roofing system is attached to this Section. It is provided for Contractor's convenience and information but is not a warranty of existing conditions. It is intended to supplement rather than serve in lieu of Contractor's own investigations.
  - 2. A site visit/roof inspection by the contractor/installer prior to submitting bids is strongly recommended.
- B. Protect adjacent construction, buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from operations.



- C. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing work to be performed according to manufacturer's written instructions and warranty requirements.
1. Apply materials within the range of ambient and substrate temperatures recommended in writing by material manufacturers, but not below 50 deg F.
  2. Apply materials within range of relative humidity recommended in writing by manufacturer of each component, but not when relative humidity exceeds 80 percent, or when temperatures are less than 5 deg F above dew point.
  3. Do not apply materials to damp or wet surfaces.
  4. Do not apply primers, polyurethane foam, or coatings in snow, rain, fog, or mist, or when such weather conditions are imminent during the application and curing period.
  5. Do not apply polyurethane foam when wind conditions result in surface finish textures not complying with requirements.
  6. Do not apply coatings when wind conditions prevent uniform coating application.

#### 1.12 COORDINATION

- A. Coordinate construction operations on or adjacent to roof, included in different Sections, which depend on each other for proper installation, connection, and operation.

#### 1.13 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace, without monetary limitation, coated foamed roofing that does not comply with requirements or that does not remain watertight within specified warranty period.
1. Warranty Period: Non-prorated 15 years from date of Substantial Completion.
- B. Special Project Warranty: Roofing Installer agrees to correct or replace, without monetary limitation, coated foamed roofing work as necessary to correct faulty and defective work and as necessary to maintain work in a watertight condition. This warranty, signed by the coated foamed roofing Installer, covers the Work of this Section, including all components of coated foamed roofing system such as polyurethane foam, silicone coating, and accessory materials, for the following warranty period:
1. Warranty Period: 2 years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 SOURCE LIMITATIONS

- A. Obtain coating and polyurethane foam from single source from single manufacturer.



## 2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Coated foamed roofing to withstand exposure to weather without failure due to defective manufacture, installation, or other defects in construction. Membrane roofing to remain watertight.
  - 1. Material Compatibility: Provide polyurethane foam, coatings, and accessory materials that are compatible with one another and with substrate under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Fire-Test-Response Characteristics: Provide coated foamed roofing with the fire-test-response characteristics indicated, as determined by testing identical systems according to test methods below for deck type and slopes indicated by a qualified testing and inspecting agency that is acceptable to authorities having jurisdiction.
  - 1. Class A roof covering according to ASTM E108.
  - 2. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
    - a. Flame-Spread Index: 75 or less.
- C. Wind-Uplift Resistance: Provide roof assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
  - 1. Uplift Rating: UL 90.
- D. Structural Performance: Provide roof assemblies capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings.
  - 3. Deflection Limits: For wind loads, no greater than 1/180 of the span.
- E. FM Approvals Listing: Provide roofing system and component materials that comply with requirements in FM Approvals Standard 4470 for roof covers as part of a foamed roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
  - 1. Fire/Windstorm Classification: Class 1A- 90.
  - 2. Hail-Resistance Classification: MH.

## 2.3 SUBSTRATE BOARD

- A. Glass Mat Gypsum Thermal Barrier: Water-resistant gypsum board with fiberglass mat laminated to both sides, ASTM C1177/C1177M, Type X, 5/8 inch.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum, LLC; DensDeck Prime Roof Board, or comparable product.



- B. Thermal-Barrier Fasteners: Factory-coated steel fasteners and metal plates complying with corrosion-resistance provisions in FM Approvals Standard 4470, and designed and sized for fastening substrate to steel roof deck.

1. Provide white fasteners where underside of roof deck will remain exposed to view.

## 2.4 POLYURETHANE FOAM

- A. Polyurethane Foam: Rigid, cellular polyurethane; complying with ASTM C1029, Type III or Type IV; spray applied, with fire retardants as required, tested as part of an assembly that passes UL 1256, UL 790, Class A listings for roof assemblies – exterior fire/non-combustible decks up to unlimited thickness of SPF and acceptable to coating manufacturer.

1. Basis-of-Design Product: Subject to compliance with requirements, provide “Progressive Materials, LLC, New Albany, IN; “PROpoly Foam SF 4228 Series Spray Foam Roofing Material”, or comparable product, including, but not limited to, products by:
  - a. Carlisle Construction Products, Cartersville, GA. (SealTite PRO Closed-Cell Spray Foam).
  - b. Gaco, a brand of Firestone Building Products, Waukesha, WI. (GacoRoofFoam).
2. In-Place Density: 2.7 to 2.9 lb/cu. ft.; ASTM D1622.
3. Compressive Strength: Not less than 50 psi; ASTM D1621.
4. Closed-Cell Content: percent, min. .90, ASTM D-6226.
5. K-factor: 0.158, ASTM C-518.
6. Dimensional Stability: 28 days, 0.69%, ASTM D-2126.
7. R-Value: Minimum aged R-value at 1-inch thickness of 6.3 deg F x h x sq. ft./Btu at 75 deg F.
8. Flame Spread: max. <25, ASTM E84.
9. Smoke Development: <450, ASTM E84

## 2.5 SILICONE COATINGS

- A. Silicone Coating: Liquid silicone elastomeric coating system specifically formulated for coating spray-applied polyurethane foam roofing.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Progressive Materials, LLC, New Albany, IN; “HS 3200 – BX Series Silicone Roof Coating with additives to deter wildlife damage”, or comparable product, including, but not limited to, products by:
  - a. Carlisle Roof Foam and Coatings, Cartersville, GA.
  - b. Gaco, a brand of Firestone Building Products, Waukesha, WI.



2. Composition: One-component silicone.
3. VOC Content Limit: 50 g/L.
4. Flame Spread: ASTM E-108, Class A.
5. Base-Coat Color: Contrasting with topcoat.
6. Topcoat Color: Light Gray.

## 2.6 ACCESSORY MATERIALS

- A. General: Accessory materials recommended in writing by roofing manufacturer for intended use.
  1. Liquid-type accessory materials must comply with VOC limits of authorities having jurisdiction.
  2. Sealants shall comply with the following limits for VOC content:
    - a. Nonmembrane Roof Sealants: 300 g/L.
    - b. Sealant Primers for Nonporous Substrates: 250 g/L.
    - c. Sealant Primers for Porous Substrates: 775 g/L.
- B. Primer: Polyurethane-foam manufacturer's standard factory-formulated primer similar to: "P-100 General Purpose Primer" by Progressive Materials, New Albany, IN.
- C. Mineral Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained by No. 40 sieve and composition recommended in writing by coating manufacturer for embedment in liquid coating similar to: "3M #11 Roofing Granules" by 3M Corporation, St. Paul, MN.
  1. Color: Light Gray.
- D. Reinforcement: Flexible polyester or fiberglass reinforcing mat of weight, type, and composition recommended in writing by coating manufacturer for embedment in liquid coating similar to; "PF 200 Polyester Fabric", width as indicated on Drawings, by Progressive Materials, LLC, New Albany, IN.
- E. Self-Sealing Tape: Butyl rubber compound with an absorbent polyester fleece face, flexible, moldable product applied to prepared substrates used to seal surfaces and prevent moisture intrusion recommended in writing by coating manufacturer for sealing substrate surfaces similar to; "FT 500 Butyl Fleece Tape" by Progressive Materials, LLC, New Albany, IN.
- F. Walkways: Coating and granule system approved by coating manufacturer. Provide as indicated on Drawings.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide Progressive Materials, LLC, New Albany, IN; "PG 700 Pro-Grip Safety Yellow Walkway Coating" and "PG-750 Pro-Grip Non-Slip Safety Yellow Walkway Granules", or comparable product, including, but not limited to, products by:



- a. Carlisle Roof and Foam Coatings, Cartersville, GA.
  - b. Gaco, a brand of Firestone Building Products.
- G. Sealant: ASTM C920, Class 35, Use NT, Grade NS, Type S, one-component, neutral- or acid-curing silicone, and as recommended in writing by coated foamed roofing manufacturer for substrate and joint conditions and for compatibility with roofing materials similar to; “SS 300 Series Professional Grade Silicone Sealant” by Progressive Materials, LLC, New Albany, IN.
  - 1. Color: Light Gray – SS 303.
- H. Sheet Flashing and Accessories: Types recommended in writing by coated foamed roofing manufacturer, provided at locations indicated and as recommended.
- I. Roof Specialties and Roof Accessories: See applicable Division 07 specification Sections.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that related work is complete. Do not install coated foamed roofing until roof openings, curbs, and parapets, if any, are complete and roof drains, vents, and other roof penetrations are in place.
- B. Examine existing coated foamed roofing system, substrates, areas, and conditions under which coated foamed restoration will be performed, with Installer present, for compliance with requirements. Submit inspection report to coated foamed roofing manufacturer detailing any deficiencies in the existing system.
- C. Identify and mark all areas of existing coating and/or insulation found to be wet, loose, blistered, delaminated, cracked, contaminated or not suitable for re-coating. Identify and mark all existing joints, cracks, terminations with cracks and expansion joint and base of wall locations to be reinforced.
- D. Verify roof slope prior to beginning installation. There is to be no single area of standing water on the roof 24 hours after a rain, greater than 100 sq. ft. and more than ½” deep.
- E. Proceed with installation only after unsatisfactory conditions have been corrected and substrates are dry, in accordance with coated foamed roofing manufacturer’s instructions.
- F. At tie-ins/transitions between SPF and Single-Ply Membrane roof systems, coordinate with single-ply membrane roof installer to allow completion of single-ply membrane roof terminations to be completed prior to SPF transition which may overlay single-ply termination.
- G. Beginning installation constitutes Contractor’s acceptance of substrates and conditions.



### 3.2 SURFACE PREPARATION

- A. General: Clean and prepare substrate according to coated foamed roofing manufacturer's written instructions. Provide clean, dust-free, dew- and condensation-free, and dry substrate for coated foamed roofing application.
  - 1. Existing roof shall be inspected for any areas of wet insulation, blisters, coating delamination or non-compatibility and areas of poor drainage; they shall be marked on roof and roof plan for remediation.
  - 2. Inspection of existing roof, identification and correction of conditions requiring remediation are the contractor's responsibility.
  - 3. Identification and removal of all wet materials are the contractor's responsibility. A moisture capacitance meter shall be used to confirm wet materials requiring removal and dry materials allowed to remain.
- B. Remove grease, oil, form-release agents, curing compounds, and other contaminants from substrate.
- C. Prepare substrate for restoration according to coated foamed roofing manufacturer's written instructions.
  - 1. For areas where coatings, foamed insulation and underlying roofing materials are indicated for removal and replacement (minimum 12" square area, at random wet area locations where multiple wet areas are clustered, larger areas of removal and replacement are acceptable at contractor's option).
    - a. Remove coating, loose granules, and debris.
    - b. Remove any wet, damp, or otherwise defective insulation, including underlying roofing materials, down to roof deck, to a level and renewable condition ready to receive mechanically-attached substrate board and polyurethane foam insulation to match thickness of adjacent insulation at transitions and to elevation as required to eliminate ponding and create positive drainage.
  - 2. For areas requiring recoating with additional foam thickness to correct poor drainage/ponding:
    - a. Remove coating, loose granules and debris.
    - b. In addition to coating removal, remove up to 1-inch depth of existing polyurethane foam insulation by a roof scarfer to a level and renewable condition, ready to receive additional polyurethane foam insulation to re-slope for positive drainage.
  - 3. For areas indicated for recoating:
    - a. Remove by vacuum, loose granules and debris.
    - b. Remove all foreign materials, loose materials, oils, algae, etc. and clean roof surface.



- c. After cleaning, inspect existing coating for adherence to substrate. If found to be blistered or loose, follow instructions listed in items 2a and 2b above.
    - d. At existing joints, cracks, terminations with cracks and expansion joint locations:
      - 1. After surface preparation, install base coat of silicone – approximately 25 mils.
      - 2. Embed appropriate width flexible mat reinforcing mesh.
      - 3. Encapsulate top of mesh with silicone.
      - 4. Cover entire detail with same thickness silicone coating as the remainder of the roof.
  - 4. Existing wall/parapet/penetration base flashings and terminations:
    - a. Remove all loose material and debris, patch and prepare substrate with compatible materials to provide an acceptable substrate for application of roof recoating materials.
    - b. At base flashing locations with metal counter flashings:
      - 1. Bend existing counter flashing upward to provide access for sealing roof membrane to wall or penetration/curb. At termination locations with cracks, follow instructions as listed in 3d above. After completion of roof to wall termination, reposition metal counter flashing and seal face of counter flashing to wall or penetration/curb.
    - c. At parapet locations with masonry coping cap:
      - 1. Remove all mastic, sealants and loose joint materials.
      - 2. Clean all surfaces, mask leading exposed exterior edge to create a crisp termination for application of coatings.
      - 3. Fill voids at joints and perimeters with compatible materials and seal with silicone sealant to provide flush, watertight condition at joint.
      - 4. Prime all surfaces.
      - 5. After surface preparation, install base coat of silicone – approximately 25 mils.
      - 6. Embed appropriate width flexible mat reinforcing mesh.
      - 7. Encapsulate top of mesh with silicone.
      - 8. Cover entire detail with same thickness silicone coating as the remainder of the roof.
    - d. At parapet/curb locations with terra-cotta cap, prepare existing terra-cotta coping/curb surfaces and joints as described above and install self-sealing tape over entire terra-cotta substrate prior to recoating.
  - 5. All waste created in the removal process shall be contained, gathered, and properly discarded.
- D. Cover and mask adjoining surfaces not receiving coated foamed roofing to provide a neat, strait termination. Prevent overspray or spillage affecting other construction. Temporarily close off roof drains, removing roof-drain plugs when not doing coated foamed roofing work or when rain is forecast.



1. Remove masking after polyurethane foam application; cover and re-mask adjoining surfaces before coating polyurethane foam.
- E. At existing roof drains, thoroughly clean drain bowl and piping to remove build-up of materials restricting flow. Before beginning construction, verify roof drains and piping are clear and in working order. Report any obstructions to Architect and Owner's Representative prior to beginning work. Seal roof coating to prepared and cleaned roof drain.
  1. At existing roof drains with plastic or missing strainer, remove existing plastic strainer and provide adjustable drain guard.
  2. At existing roof drains with cast-iron strainer, remove, protect, clean and reinstall existing cast-iron strainer after completion of work.
- F. Remove dust and dirt from joints and cracks before applying reinforcing and silicone coatings.
- G. Prime all substrates as recommended in writing by coated foamed roofing manufacturer.
- H. Fill, cover, or tape joints, cracks, expansion joints and base of wall flashings in substrate with flexible mat reinforcing mesh embedded in base and top courses of silicone prior to recoating.
- I. Prepare existing terra-cotta coping/curb surfaces and install self-sealing tape over entire prepared terra-cotta substrate prior to recoating.

### 3.3 SUBSTRATE BOARD INSTALLATION (AT STEEL DECK)

- A. Install substrate board with long joints in continuous straight lines, with end joints staggered not less than 24 inches in adjacent rows.
  1. At steel roof decks, install substrate board at right angle to flutes of deck.
    - a. Locate end joints over crests of steel roof deck.
  2. Tightly butt substrate boards together.
  3. Cut substrate board to fit tight around penetrations and projections, and to fit tight to intersecting sloping roof decks.
  4. Mechanically Attached Substrate Boards: Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions and in compliance with "Performance Requirements" Article; minimum quantity: one fastener per 2 square feet at field and perimeter, one fastener per square foot at corners.
    - a. Steel Deck: Size fasteners to extend no further than elevation of bottom flute.

### 3.4 POLYURETHANE FOAM APPLICATION

- A. General: Mix and apply polyurethane foam according to ASTM D5469/D5469M and coated foamed roofing manufacturer's written instructions.



1. Fill irregularities and depressions to prevent ponding water.
2. Apply the required full thickness of polyurethane foam in any specific area on same day.
3. Apply only the area of polyurethane foam that can be covered with required base coating on same day or within 24 hours.
4. Apply polyurethane foam to avoid overspray beyond immediate area of work.
  - a. All objects that require protection from overspray shall be protected; all movable objects shall be moved to an acceptable area. All intake air vents shall be turned off and covered.
  - b. Apply the polyurethane foam in accordance with the polyurethane foam manufacturer's specifications and application instructions.
- B. Apply polyurethane foam in lift thicknesses of not less than 1/2 inch and not more than 1-1/2 inches.
- C. Uniformly apply total thickness of polyurethane foam indicated, but not less than 1 inch, to a surface tolerance of plus 1/4 inch and no minus.
  1. Slope to Drain: Vary thickness uniformly and fill low spots to achieve minimum 1/4-inch-per-foot slope to drain unless otherwise indicated.
- D. Apply polyurethane foam to roof penetrations, terminations, and vertical surfaces as indicated. Unless otherwise indicated, extend polyurethane foam at least 4 inches above elevation of adjacent roof field.
  1. Do not block existing masonry weeps.
- E. Surface Finish: Provide finished surface of polyurethane foam within the following range of surface textures as defined by ASTM D5469/D5469M:
  1. Texture: Smooth to orange peel.
- F. Remove and replace polyurethane foam not complying with surface-texture limitations. Remove defective thickness and prepare and reapply polyurethane foam with acceptable, uniform results.

### 3.5 COATING APPLICATION

- A. Allow polyurethane foam substrate to cure for a minimum of two hours before coating, and apply coating system to polyurethane foam no later than 24 hours after applying the foam. Remove dust, dirt, water, and other contaminants before applying coating system.
  1. Prior to the application of coating, inspect the polyurethane foam surface to ensure the conditions of Section 3.3 have been met.
- B. Apply coating system to polyurethane foam by spray, roller, or other suitable application method according to coating manufacturer's written instructions.



- C. Apply base coat and one or more topcoats to obtain a uniform, seamless membrane free of blisters and pinholes. Apply each coat at right angles to preceding coat, using contrasting color tints for successive coats.
  - 1. Apply topcoat(s) after removing dust, dirt, water, and other contaminants from base coat.
  - 2. Silicone Coating: Apply coating system to a minimum dry film thickness of 25 mils at all areas of removal and replacement and areas of recoating.
- D. Height at Terminations: Apply coating system at wall terminations and other vertical surfaces to extend vertically beyond polyurethane foam by a minimum of 4 inches.
- E. Mineral Granules: Apply mineral granules over wet topcoat or additional coat, using pressure equipment at the rate of 30 to 40 lbs per 100 sq. ft. Remove excess granules after topcoat has cured.
- F. Sealant: Apply sealant to perimeter and other terminations where indicated on Drawings or required by coated foamed roofing manufacturer.
  - 1. At all roof edges, cut 1" 'V' groove at SPF termination against metal fascia and fill with continuous silicone sealant – typical. Apply roof edge sealant prior to coating application.
- G. Walkways: Install roof walkways in pattern and locations indicated and as follows:
  - 1. Granule-Coated Walkways: Walkways shall be a minimum of 30" wide. Mask off completed coating adjacent to walkways, and apply coat(s) of 'Safety Yellow' walkway coating to achieve a minimum dry film thickness of not less than 25 mils or as recommended in writing by coated foamed roofing manufacturer. Spread 'Safety Yellow' mineral granules uniformly at a rate of 0.5 lb/sq. ft. into final wet coating. Remove masking and excess granules after topcoat has cured.

### 3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Upon completion of roof restoration and recoating work, engage a qualified testing agency to perform tests and inspections.
  - 1. Testing agency will identify, seal, and certify samples of materials taken from Project site, with Contractor present.
  - 2. Testing agency will perform tests for product characteristics specified or cited in manufacturer's product data.
    - a. Two core samples will be required for roof areas of up to 10,000 sq. ft., and one core sample will be required for each additional 10,000 sq. ft. or part thereof.
    - b. Six slit-test samples will be required for each 10,000 sq. ft. of roof area to determine, as a minimum, the number of coats applied and dry film thickness of coating.
  - 3. Testing agency will verify that surfaces slope to drain.



4. Testing agency will perform an infrared moisture scan at all restored roof areas to confirm no wet materials exist beneath the roof membrane. Any wet materials identified are required to be removed and replaced with new materials.
- B. Coated foamed roofing will be considered defective if it does not pass tests and inspections.
- C. Refill cores, correct slits, and re-coat test areas.
- D. Prepare test and inspection reports to be submitted to Architect.

### 3.7 CORRECTION AND RE-COATING

- A. Correct deficiencies in, or remove, foam or coatings that do not comply with requirements; fill and correct substrates and reapply materials.
- B. Correct and re-coat coated foamed roofing according to ASTM D6705/D6705M and manufacturer's written instructions.

### 3.8 CURING, PROTECTING, AND CLEANING

- A. Cure coatings according to manufacturer's written instructions, taking care to prevent contamination and damage during application stages and curing. Do not permit traffic on uncured coatings.
- B. Ensure roof surface is free of traffic for minimum of 12 hours after silicone coating application or until coating is completely cured.
- C. Protect coated foamed roofing from damage and wear during remainder of construction period.
- D. Ensure any subsequent work does not cause damage to finished roof system. If necessary, install protection over finished roof area.
- E. Remove excess loose granules after topcoat has cured to avoid migration of granules into storm drains.
- F. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 07 57 50

Attachment: Roof scans







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# **Infrared Roof Moisture Survey**

## **Wallkill Central School District Leptondale Elementary School**

**Date:**

May 23, 2022

**Prepared For:**

Tetra Tech Architects & Engineers  
10 Brown Road  
Ithaca, NY 14850

**Prepared By:**

***ROOF SCAN, Inc.***

72 Phillips Road  
Valley Falls, NY 12185

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# ***Table of Contents***

- 1. Operating Principles of Moisture Detection Equipment**
- 2. Moisture Survey Procedures**
- 3. Moisture Survey Report**
- 4. Thermograms**
- 5. Roof Plan**



# **Operating Principles of Moisture Detection Equipment**

## **Troxler 3216 Nuclear Moisture Detector:**

The Nuclear Moisture Detector is an extremely accurate and sensitive device specifically designed for performing non-destructive roof moisture surveys. The nuclear detector can detect very small quantities of moisture regardless of where it is located within the roof system. This enables the detector to, in most cases, differentiate between damp and wet insulation. The maximum operating depth is about 8 inches. Contradictory to its name, the moisture detector does not directly measure or detect moisture. The instrument locates moisture by seeking out hydrogen atoms. Hydrogen atoms are present in organic materials and are most abundant in water.

A radioactive source of Americium 241:Beryllium is encapsulated and sealed within the instrument. When the instrument is activated, fast neutrons are produced by exposing the Americium to the Beryllium. The fast neutrons collide with hydrogen atoms and are "thermalized" or slowed down. The meter measures the rate of collision for a pre-set time period, similar to radar, and displays the count on a digital periodic rate meter. Since all hydrogen bearing materials contribute to the count rate, the meter must be calibrated for each roof to obtain absolute moisture readings and to keep operator interpretation to a minimum.

## **Flir E8 and E30bx Infrared Cameras:**

This system measures temperature differentials found on the roof surface by detecting infrared radiation which is converted to an electrical signal and then to a video signal that is displayed on a small screen. Wet areas absorb and hold heat from solar radiation and from building heat loss longer than dry areas do. This is because wet insulation is a better conductor of heat than dry insulation is. Dry areas cool off quickly and therefore do not readily absorb and hold heat. The infrared camera locates the wet insulation by detecting the surface temperature differences between the wet and dry areas.

**END OF SECTION**



# **Moisture Survey Procedures**

**The following procedures were used to conduct this moisture survey:**

1. The roof was scanned with an Infrared Camera. The moisture contours of all wet areas were marked on the roof surface with orange spray paint.
2. A roof plan was drawn to scale showing all roof top equipment and the locations and contours of all moisture laden insulation.
3. Thermograms were taken at selected anomalies.
4. As a final verification of the moisture testing, one or more core samples were taken to verify the conditions and to determine the exact roof construction.
5. This report defines; the roof construction and the conditions of the roof system at the core locations, and the square footage and percent of total roof area containing dry insulation and moisture laden insulation.

**END OF SECTION**



# **Moisture Survey Report**

## **Scope of Survey**

The intent of the survey was to document the location and extent of moisture intrusion into the roof system.

## **Anomalies**

The roof system was scanned with a Flir E8 and a Flir E30bx infrared camera. The locations and contours of all anomalies have been marked on the roof surface with pink paint. Moisture content of the anomalies were verified using the nuclear moisture gauge. Thermograms of some of the anomalies are shown in this report

## **Thermograms**

Thermograms are heat images taken with the infrared camera. Thermograms were taken of several anomalies located during the survey. The locations of the thermograms can be found on the drawing.

## **Core Sample Construction & Moisture Content**

### **Roof 2 @ Core 1**

- Granular Surface Silicone Membrane
- 1½”± Spray-In-Place Urethane Foam Insulation (**wet**)
- Asphalt Membrane (**did not cut**)
- The remainder of the roof construction was not determined

## **Moisture Quantities**

The subsurface moisture content of the roof system expressed in sq.ft., percentage of roof area, and number of moisture laden locations is as follows:

**Roof 1** = 1,050 ± sq.ft.

Dry insulation = 935 ± sq.ft. or 89% of the roof area.

Damp to wet insulation = 115 ± sq.ft. or 11% of the roof area.

Number of moisture laden locations = 3 spots up to 1 sq.ft. and 7 areas up to 42 sq. ft.

**Roof 2** = 1,975 ± sq.ft.

Dry insulation = 1,334 ± sq.ft. or 67% of the roof area.

Damp to wet insulation = 641 ± sq.ft. or 33% of the roof area.

Number of moisture laden locations = 5 spots up to 1 sq.ft. and 8 areas up to 528 sq. ft.



**Roof 3** = 1,596 ± sq.ft.

Dry insulation = 1,596 ± sq.ft. or 100% of the roof area.

**Roof 4** = 4,662 ± sq.ft.

Dry insulation = 4,617 ± sq.ft. or 99% of the roof area.

Damp to wet insulation = 45 ± sq.ft. or 1% of the roof area.

Number of moisture laden locations = 3 spots up to 1 sq.ft. and 4 areas up to 52 sq. ft.

**Roof 5** = 5,185 ± sq.ft.

Dry insulation = 2,814 ± sq.ft. or 54% of the roof area.

Damp to wet insulation = 2,371 ± sq.ft. or 46% of the roof area.

Number of moisture laden locations = 2 spots up to 1 sq.ft. and 11 areas up to 1,600 sq. ft.

**Roof 6** = 4,020 ± sq.ft.

Dry insulation = 2,771 ± sq.ft. or 69% of the roof area.

Damp to wet insulation = 1,249 ± sq.ft. or 31% of the roof area.

Number of moisture laden locations = 30 spots up to 1 sq.ft. and 38 areas up to 640 sq. ft.

**Roof 7** = 5,732 ± sq.ft.

Dry insulation = N/A

Damp to wet insulation = 5,732 ± sq.ft. or 100% of the roof area.

Number of moisture laden locations = The entire roof area is random wet

**Roof 8** = 4,200 ± sq.ft.

Dry insulation = 3,168 ± sq.ft. or 75% of the roof area.

Damp to wet insulation = 1,032 ± sq.ft. or 25% of the roof area.

Number of moisture laden locations = 52 spots up to 1 sq.ft. and 51 areas up to 335 sq. ft.

**Roof 9** = 8,432 ± sq.ft.

Dry insulation = 6,373 ± sq.ft. or 75% of the roof area.

Damp to wet insulation = 2,059 ± sq.ft. or 25% of the roof area.

Number of moisture laden locations = 26 spot up to 1 sq.ft. and 24 areas up to 1,200 sq. ft.



**Roof 10** = 2,223 ± sq.ft.

Dry insulation = 762 ± sq.ft. or 34% of the roof area.

Damp to wet insulation = 1,461 ± sq.ft. or 3% of the roof area.

Number of moisture laden locations = 8 spots up to 1 sq.ft. and 12 areas up to 775 sq. ft.

**Roof 11** = 13,440 ± sq.ft.

Dry insulation = 9,711 ± sq.ft. or 72% of the roof area.

Damp to wet insulation = 3,729 ± sq.ft. or 28% of the roof area.

Number of moisture laden locations = 81 spots up to 1 sq.ft. and 60 areas up to 1,840 sq. ft.

**Project Total** = 52,515 ± sq.ft.

Dry insulation = 34,081 ± sq.ft. or 65% of the roof area.

Damp to wet insulation = 18,434 ± sq.ft. or 35% of the roof area.

Number of moisture laden locations = 210 spots up to 1 sq.ft. and 216 areas up to 5,732 sq. ft.

## **Summary**

The moisture survey indicates as accurately as existing conditions permit, the subsurface conditions of the roofs at the time the survey was conducted.

The “assumed wet” areas on Roof 5 were generated by the results from our previous moisture survey in 2015 and the observations from the current survey. These assumed wet areas are most likely on the low end of the estimation and it is our opinion that Roof 5 should be replaced in its entirety to account for any undetected moisture and to improve the drainage of surface moisture.

Roof 7 was found to be primarily (approximately 65-70%) random wet. Although some dry areas were observed, the significant amount and random dispersement of moisture laden areas would make repairs on this roof area impractical.

If there will be a long delay between the time the survey was conducted and when the repair or replacement work will begin, we suggest the wet areas be remarked with spray paint before the paint that defines the areas fades away. The paint that was applied during the survey should last at least 3 to 6 months before repainting may be required.

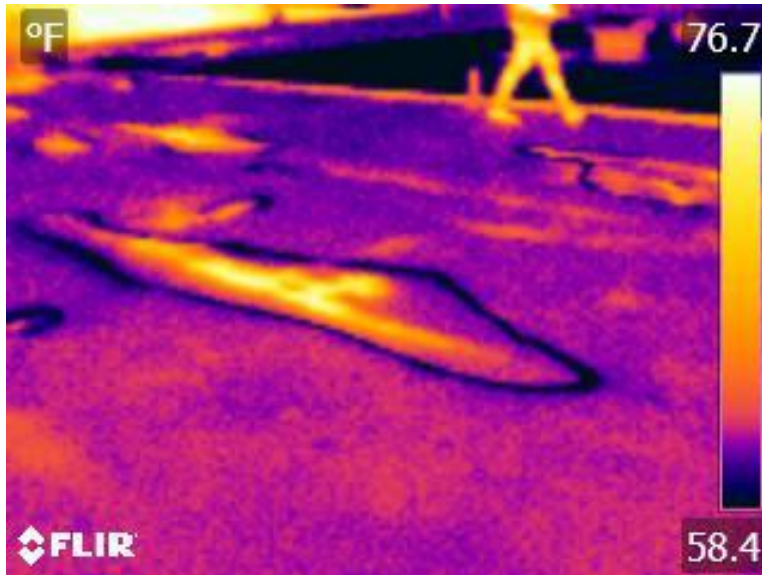
If the moisture laden insulation is to be removed as part of a repair or replacement project, we suggest that it would be advisable to increase the known quantity by a certain percentage to allow for undetected moisture, if any, and for moisture that may enter the system after the survey was completed.

## **END OF SECTION**

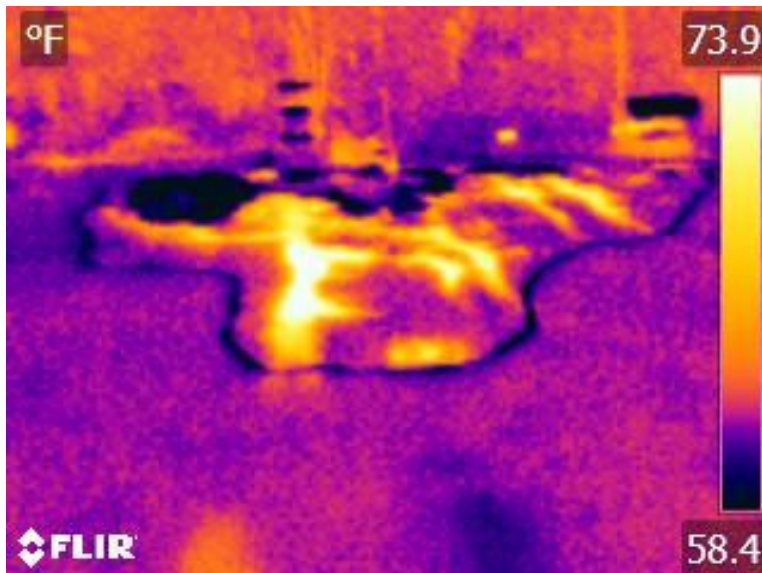


# Thermograms

Thermograms were taken of roof areas and select anomalies located during the survey. The bright orange/yellow areas indicate spots/areas of moisture intrusion while the black/purple areas indicate a dry roof condition. The majority of thermograms taken during this survey show groups of wet and/or random wet areas relative to their locations which are identified on the accompanying drawing.

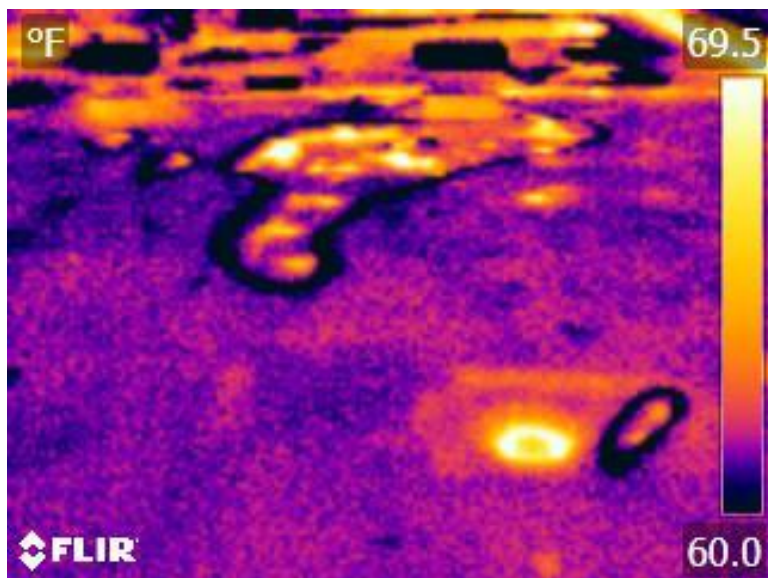


Thermogram 1

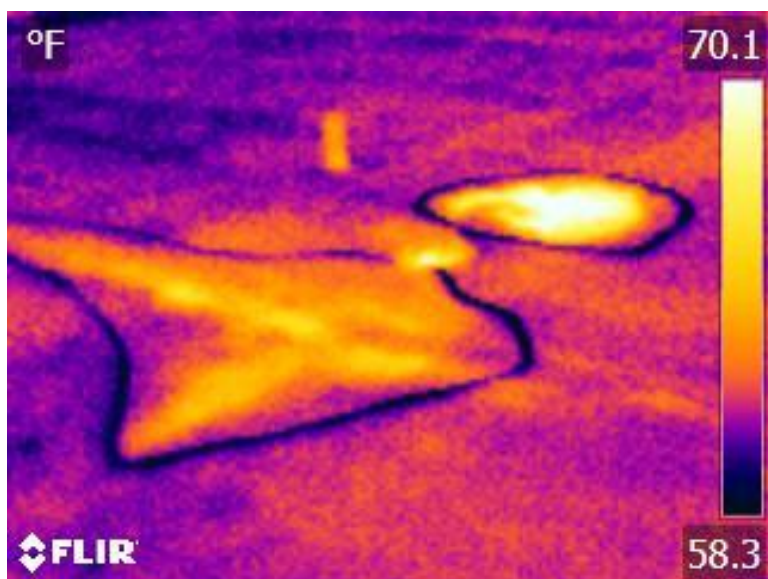


Thermogram 2



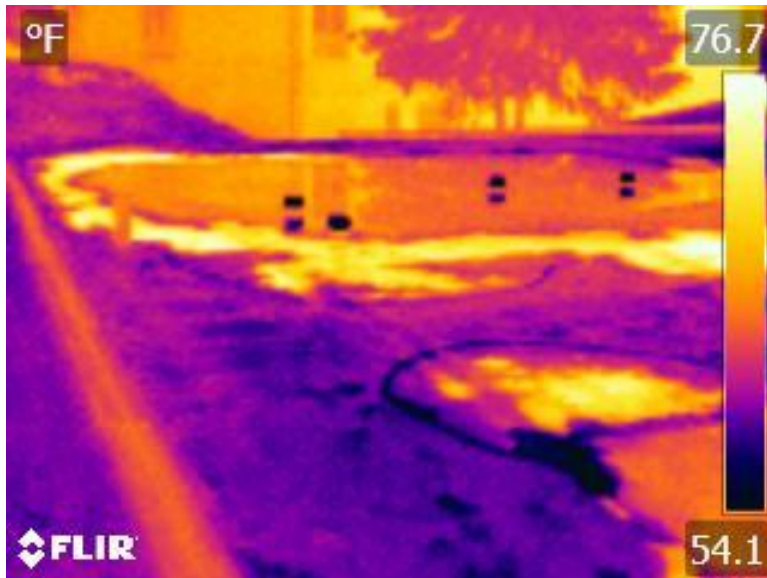


Thermogram 3

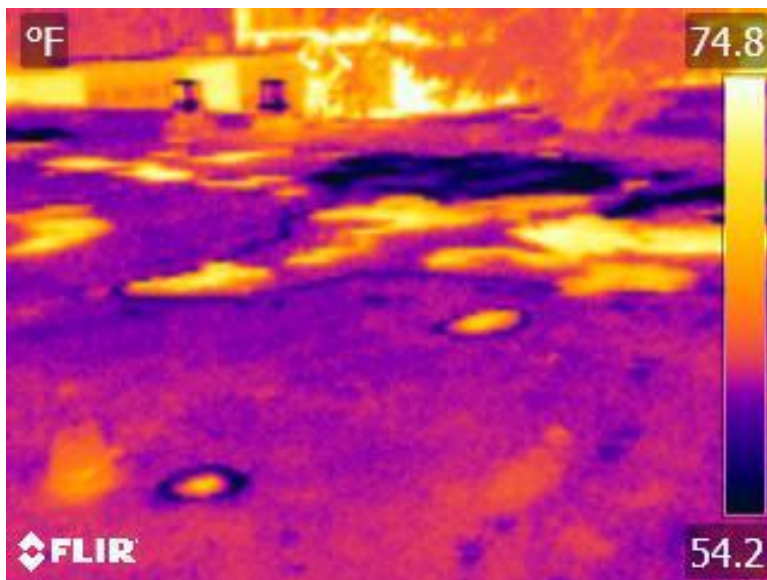


Thermogram 4



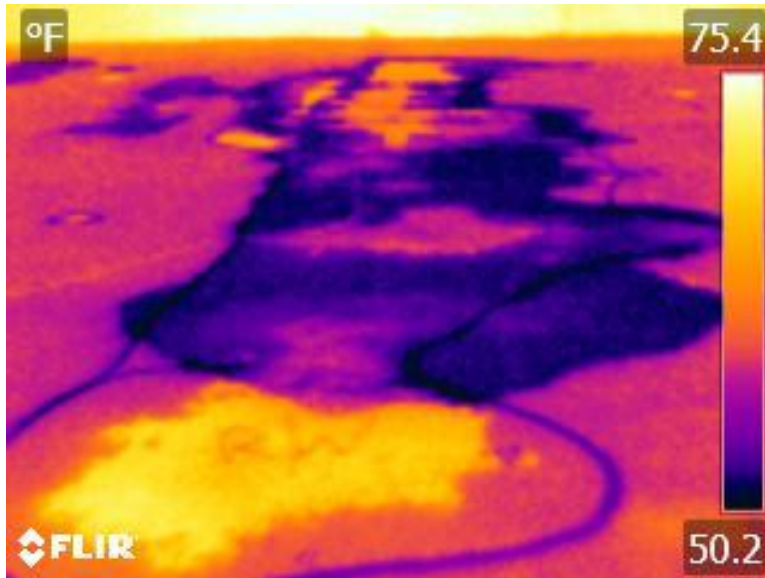


Thermogram 5

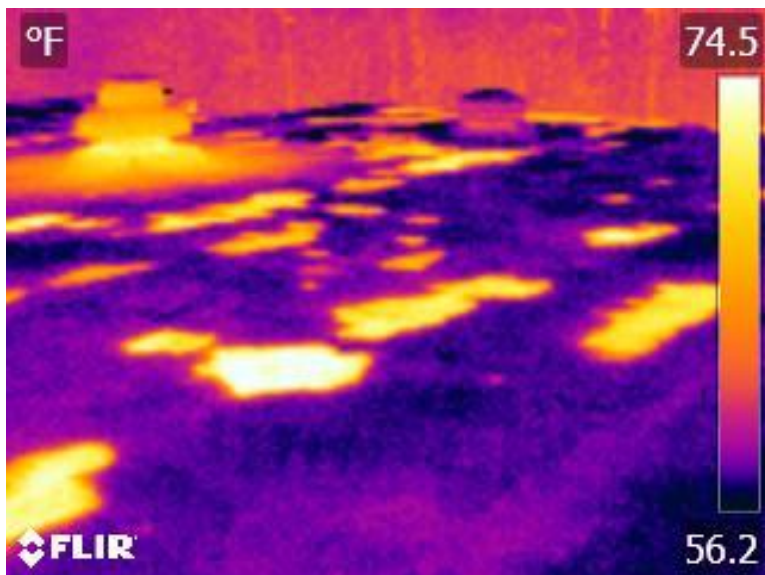


Thermogram 6



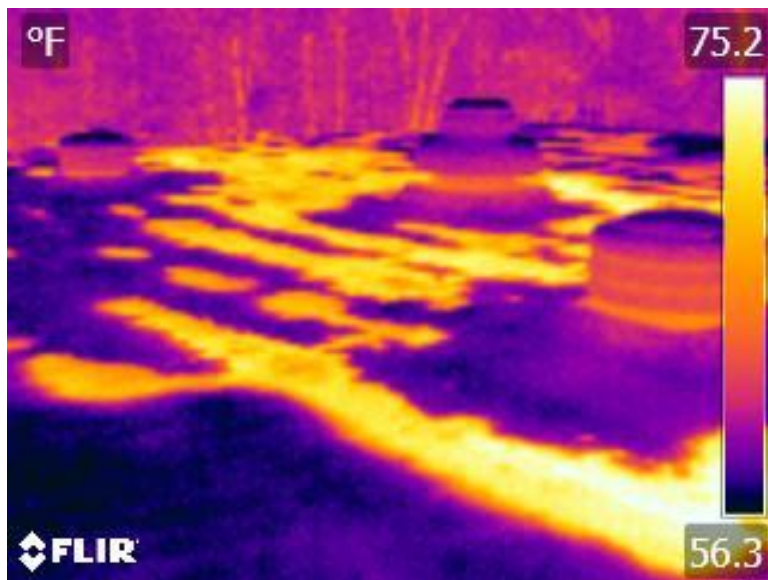


Thermogram 7

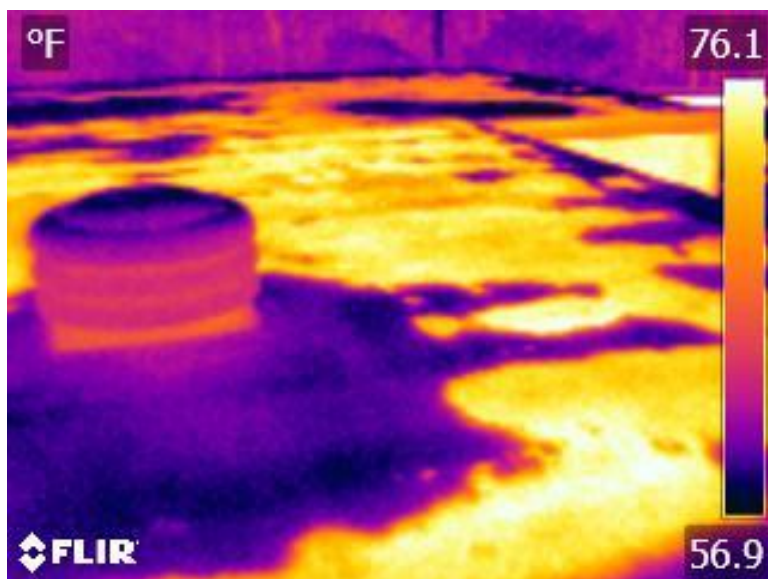


Thermogram 8



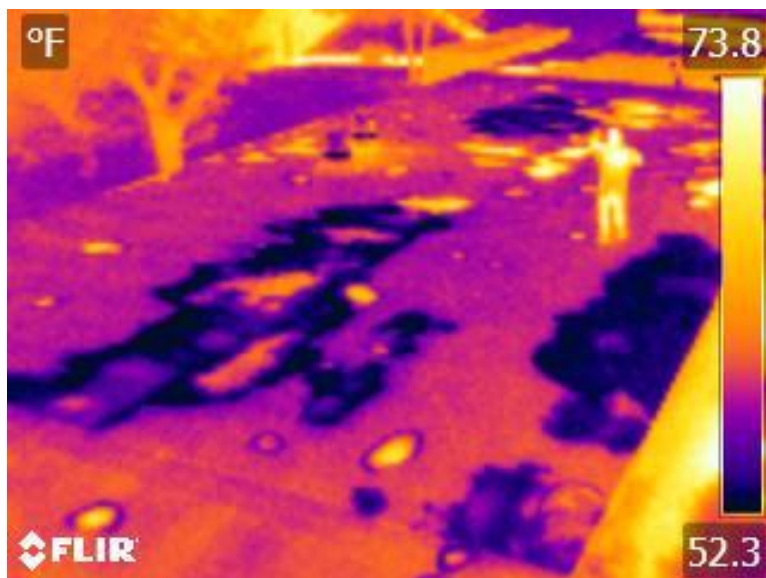


Thermogram 9

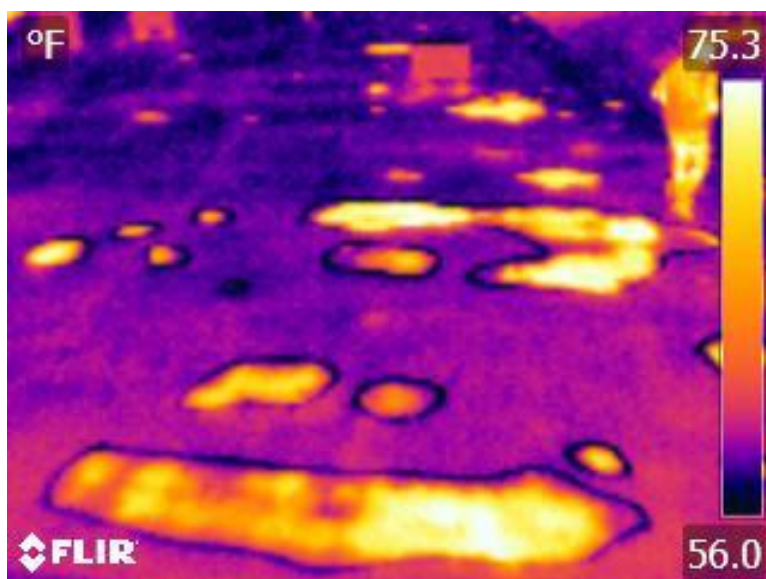


Thermogram 10



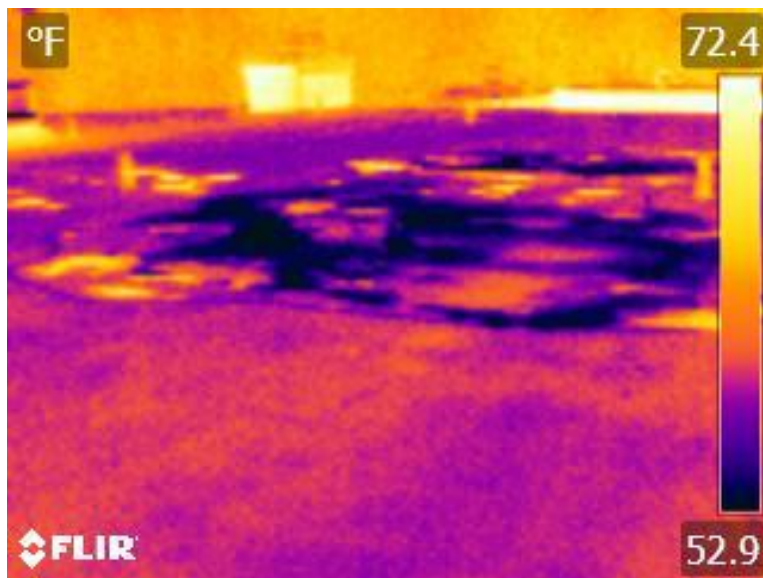


Thermogram 11

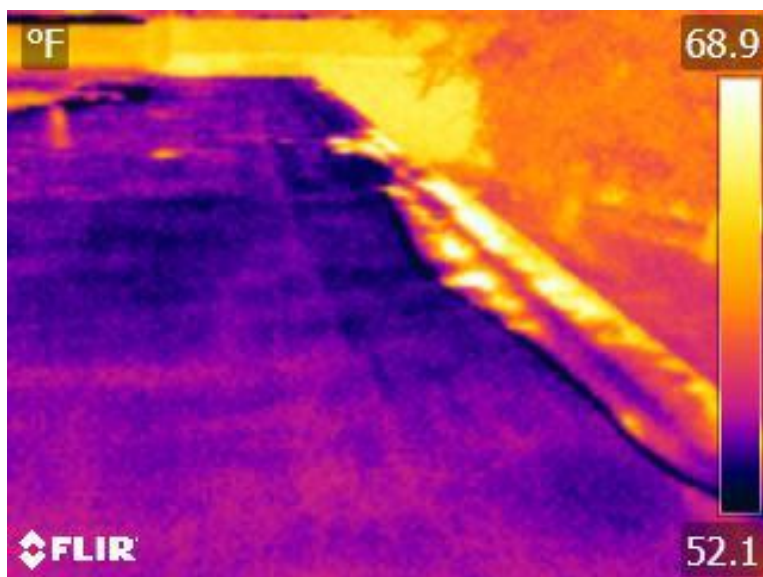


Thermogram 12



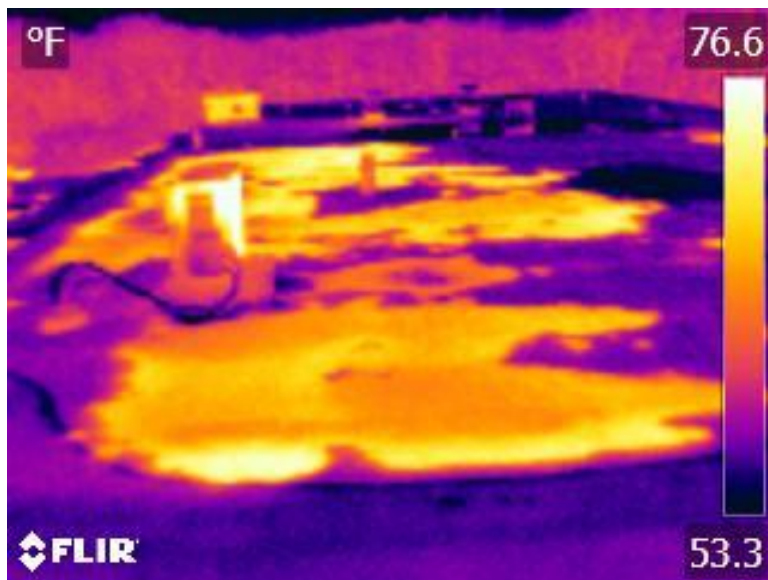


Thermogram 13

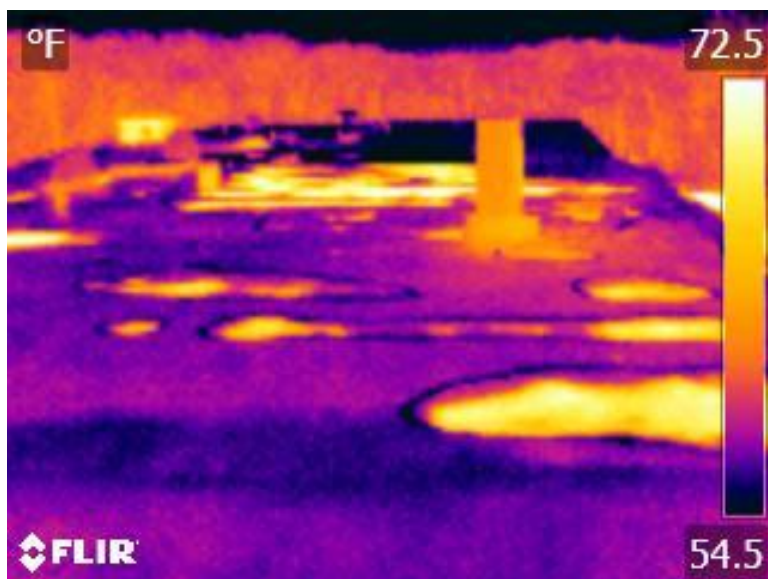


Thermogram 14



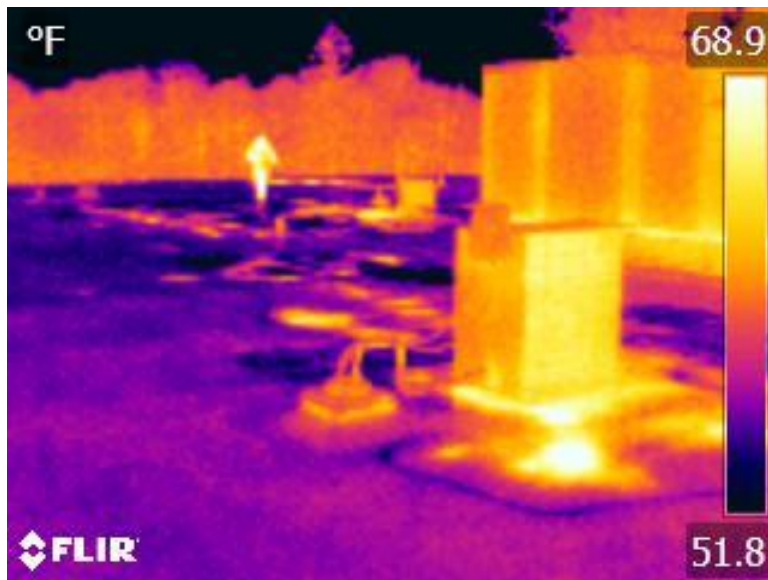


Thermogram 15

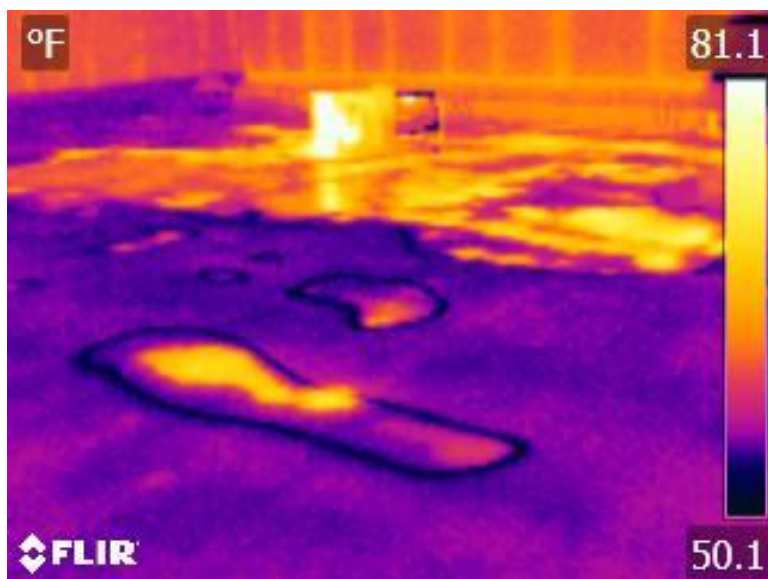


Thermogram 16



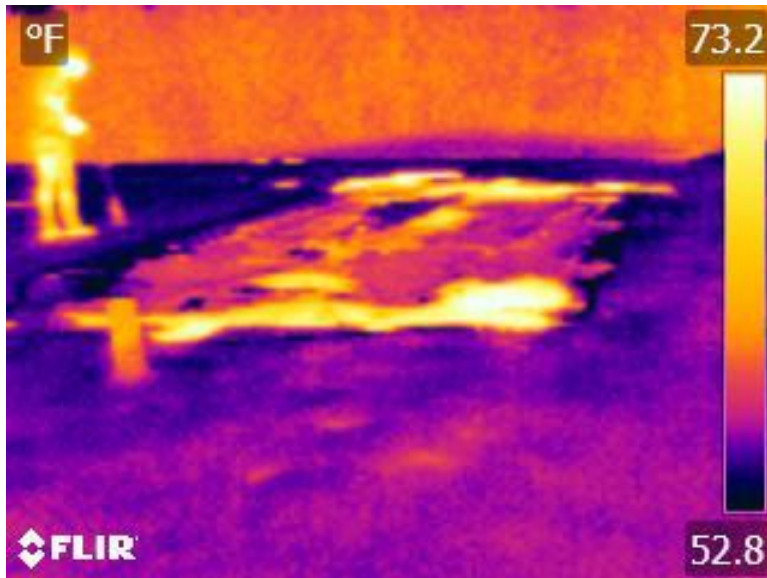


Thermogram 17

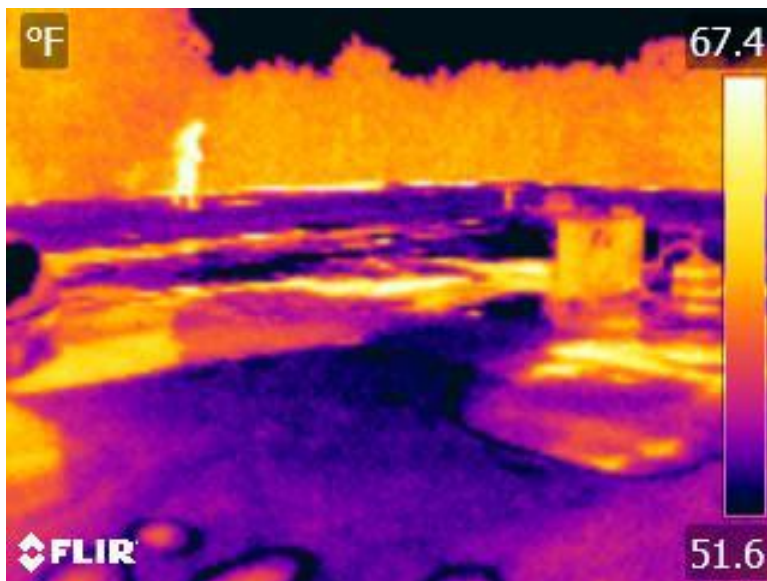


Thermogram 18





Thermogram 19



Thermogram 20

END OF REPORT

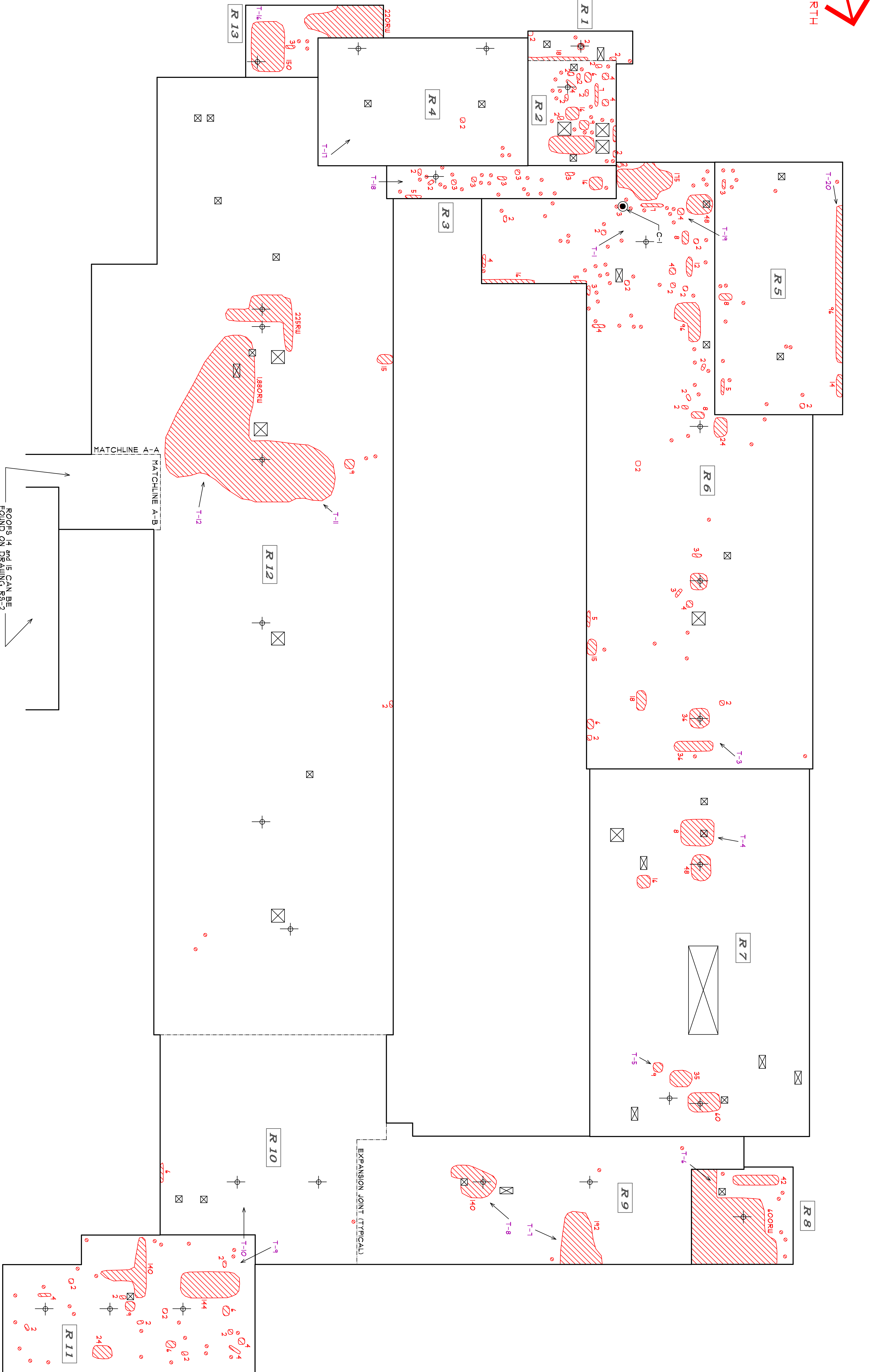


## GENERAL NOTES

- ON ALL ROOFS AN INFRARED CAMERA WAS USED TO IDENTIFY INSULATION IN THE ROOF SYSTEM WHERE NECESSARY NUCLEAR METER READINGS WERE TAKEN TO VERIFY THE FINDINGS OF THE INFRARED CAMERA.
- WET AREAS ARE IDENTIFIED ON ROOF SURFACES WITH DRYING PAINT. SOME ARE LOCATED WITH RED DOTS THAT HAVE BEEN SQUARED OFF.
- WET AREAS ARE IDENTIFIED ON ROOF PLAN LOCATIONS.
- ALL ROOF TOP EQUIPMENT MAY NOT HAVE BEEN SHOWN.
- ALL EQUIPMENT LOCATIONS APPROXIMATE.

## PLAN SYMBOLS

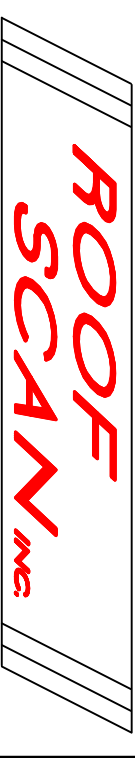
- DRY INSULATION
- 1 SQ.FT. OR LESS OF WET INSULATION
- 25 DAMP TO WET INSULATION
- NUMBER ADJACENT TO SYMBOL INDICATES APPROXIMATE SIZE OF WET AREA IN SQUARE FEET.
- 25RU RANDOM WET AREA
- RANDOM WET DEFINES AN AREA THAT CONTAINS A CLOSED GROUDED MIXTURE OF DRY AND DAMP WET INSULATION. RANDOM DISPERSMENT OF DRY/DAMP WET INSULATION MAKES IT IMPOSSIBLE OR IMPRACTICAL TO ISOLATE AND IDENTIFY EACH DAMP OR WET SPOT.
- TEST CORE
- T-1 THERMOCRAH
- ⊕ ROOF DRAIN
- ⊠ ROOF TOP EQUIPMENT



## PART ROOF PLAN - WALKILL CSD - OSTRANDER ELEMENTARY SCHOOL

SCALE : 1/4" = 1' - 0"


CLIENT: TETRA TECH ARCHITECTS & ENGINEERS 10 BROWN ROAD ITHACA, NY 14850	
BUILDING: WALKILL CENTRAL SCHOOL DISTRICT OSTRANDER ELEMENTARY SCHOOL 31 VOLTA AVENUE WALKILL, NY 13851	
SURVEY DATES MOISTURE: 5/23/22 ASBESTOS: _____	JOB NO. 22-0401-05
SCALE: 1/4" = 10'	DRAWING NO. RS-1




12 PHILLIPS ROAD, VALLEY FALLS, NY 1285  
WWW.ROOFSKANINC.COM  
(518) 441 - 3459 INFO@ROOFSKANINC.COM



1. ON ALL ROOFS, AN INFRARED CAMERA MUST BE USED TO SURVEY THE INSULATION IN THE ROOF SYSTEMS WHERE NECESSARY TO VERIFY THE FINDINGS OF THE INCREASED CAMERA.
2. UET AREAS ARE IDENTIFIED ON ROOF SURFACES WITH MARKING PAINT, SOME IRREGULARLY SHAPED UET AREAS MAY NOT BE SQUARED OFF.
3. UET AREAS ARE IDENTIFIED ON ROOF PLANS TO APPROXIMATE CORRESPONDING LOCATIONS.
4. ALL ROOF TOP EQUIPMENT MAY NOT HAVE BEEN SHOWN.
5. ALL EQUIPMENT LOCATIONS APPROXIMATE.

- ☐ DRY INSULATION
- e 1 SQ.FT. OR LESS OF WET INSULATION
- 25  DAMP TO WET INSULATION
- NUMBER ADJACENT TO SYMBOL INDICATES  
APPROXIMATE SIZE OF WET AREA  
IN SQUARE FEET.

-  **RANDOM WET AREA**
- RANDOM WET DEFINES AN AREA THAT CONTAINS A CLOSELY GROUPED MIXTURE OF DRY, DAMP AND WET INSULATION. THE RANDOM DISPERSEMENT OF THE DAMP AND WET INSULATION MAKES IT IMPOSSIBLE OR IMPRACTICAL TO ISOLATE AND IDENTIFY EACH DAMP OR WET SPOT.

- TEST CORE  
THERMOGRAPH  
ROOF DRAIN  
ROOF TOP EQUIPMENT

CLIENT:  
TETRA TECH ARCHITECTS & ENGINEERS  
10 BROWN ROAD  
ITHACA, NY 14850

BUILDING:  
WALKILL CENTRAL SCHOOL DISTRICT-  
OSTRANDER ELEMENTARY SCHOOL  
131 VIOLA AVENUE  
WALKILL, NY 12589

SURVEY DATES	JOB NO.
MOISTURE: <u>5/23/22</u>	<u>22-0401-05</u>
ASBESTOS: _____	
SCALE: 1/4" = 1'0"	DRAWING NO. <u>RS-2</u>

PART ROOF PLAN - WALLKILL CSD - OSTRANDER ELEMENTARY SCHOOL

SCALE :  $1/16'' = 1' - 0$




# North


THE REMAINDER OF THE BUILDING  
CAN BE FOUND ON DRAWING RS-1




RANDOM WET AREA

NUMBER ADJACENT TO SYMBOL INDICATES APPROXIMATE SIZE OF WET AREA IN SQUARE FEET.

 DAMP TO WET INSULATION

 DAMP TO WET INSULATION

25RU



RANDOM WET AREA

RANDOM DISPERSEMENT OF THE DAMP AND WET INSULATION MAKES IT IMPOSSIBLE OR IMPRACTICAL TO ISOLATE AND IDENTIFY EACH DAMP OR WET SPOT.

TEST CORE

↓ THERMOGRAM

⊕ ROOF DRAIN

☐ ROOF TOP EQUIPMENT

**ROOF  
SCAN<sub>INC.</sub>**

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WWW.ROOFSKANINC.COM  
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# **Infrared Roof Moisture Survey**

## **Wallkill Central School District Ostrander Elementary School**

**Date:**

May 23, 2022

**Prepared For:**

Tetra Tech Architects & Engineers  
10 Brown Road  
Ithaca, NY 14850

**Prepared By:**

***ROOF SCAN, Inc.***

72 Phillips Road  
Valley Falls, NY 12185

(518) 441 - 3659

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## **Troxler 3216 Nuclear Moisture Detector:**

The Nuclear Moisture Detector is an extremely accurate and sensitive device specifically designed for performing non-destructive roof moisture surveys. The nuclear detector can detect very small quantities of moisture regardless of where it is located within the roof system. This enables the detector to, in most cases, differentiate between damp and wet insulation. The maximum operating depth is about 8 inches. Contradictory to its name, the moisture detector does not directly measure or detect moisture. The instrument locates moisture by seeking out hydrogen atoms. Hydrogen atoms are present in organic materials and are most abundant in water.

A radioactive source of Americium 241:Beryllium is encapsulated and sealed within the instrument. When the instrument is activated, fast neutrons are produced by exposing the Americium to the Beryllium. The fast neutrons collide with hydrogen atoms and are "thermalized" or slowed down. The meter measures the rate of collision for a pre-set time period, similar to radar, and displays the count on a digital periodic rate meter. Since all hydrogen bearing materials contribute to the count rate, the meter must be calibrated for each roof to obtain absolute moisture readings and to keep operator interpretation to a minimum.

## **Flir E8 and E30bx Infrared Cameras:**

This system measures temperature differentials found on the roof surface by detecting infrared radiation which is converted to an electrical signal and then to a video signal that is displayed on a small screen. Wet areas absorb and hold heat from solar radiation and from building heat loss longer than dry areas do. This is because wet insulation is a better conductor of heat than dry insulation is. Dry areas cool off quickly and therefore do not readily absorb and hold heat. The infrared camera locates the wet insulation by detecting the surface temperature differences between the wet and dry areas.

**END OF SECTION**



# **Moisture Survey Procedures**

**The following procedures were used to conduct this moisture survey:**

1. The roof was scanned with an Infrared Camera. The moisture contours of all wet areas were marked on the roof surface with orange spray paint.
2. A roof plan was drawn to scale showing all roof top equipment and the locations and contours of all moisture laden insulation.
3. Thermograms were taken at selected anomalies.
4. As a final verification of the moisture testing, one or more core samples were taken to verify the conditions and to determine the exact roof construction.
5. This report defines; the roof construction and the conditions of the roof system at the core locations, and the square footage and percent of total roof area containing dry insulation and moisture laden insulation.

**END OF SECTION**



# **Moisture Survey Report**

## **Scope of Survey**

The intent of the survey was to document the location and extent of moisture intrusion into the roof system.

## **Anomalies**

The roof system was scanned with a Flir E8 and a Flir E30bx infrared camera. The locations and contours of all anomalies have been marked on the roof surface with pink paint. Moisture content of the anomalies were verified using the nuclear moisture gauge. Thermograms of some of the anomalies are shown in this report

## **Thermograms**

Thermograms are heat images taken with the infrared camera. Thermograms were taken of several anomalies located during the survey. The locations of the thermograms can be found on the drawing.

## **Core Sample Construction & Moisture Content**

### **Roof 2 @ Core 1**

- Granular Surface Silicone Membrane
- 2"± Spray-In-Place Urethane Foam Insulation (**wet**)
- Asphalt Membrane (**did not cut**)
- The remainder of the roof construction was not determined

## **Moisture Quantities**

The subsurface moisture content of the roof system expressed in sq.ft., percentage of roof area, and number of moisture laden locations is as follows:

**Roof 1** = 294 ± sq.ft.

Dry insulation = 268 ± sq.ft. or 91% of the roof area.

Damp to wet insulation = 26 ± sq.ft. or 9% of the roof area.

Number of moisture laden locations = 2 spots up to 1 sq.ft. and 4 areas up to 18 sq. ft.

**Roof 2** = 864 ± sq.ft.

Dry insulation = 696 ± sq.ft. or 80% of the roof area.

Damp to wet insulation = 168 ± sq.ft. or 20% of the roof area.

Number of moisture laden locations = 17 spots up to 1 sq.ft. and 15 areas up to 84 sq. ft.



**Roof 3** = 702 ± sq.ft.

Dry insulation = 642 ± sq.ft. or 91% of the roof area.

Damp to wet insulation = 60 ± sq.ft. or 9% of the roof area.

Number of moisture laden locations = 20 spots up to 1 sq.ft. and 9 areas up to 16 sq. ft.

**Roof 4** = 2,496 ± sq.ft.

Dry insulation = 2,491 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 5 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 3 spots up to 1 sq.ft. and 1 area up to 2 sq. ft.

**Roof 5** = 3,003 ± sq.ft.

Dry insulation = 2,856 ± sq.ft. or 95% of the roof area.

Damp to wet insulation = 147 ± sq.ft. or 5% of the roof area.

Number of moisture laden locations = 19 spots up to 1 sq.ft. and 6 areas up to 96 sq. ft.

**Roof 6** = 11,172 ± sq.ft.

Dry insulation = 10,517 ± sq.ft. or 94% of the roof area.

Damp to wet insulation = 655 ± sq.ft. or 6% of the roof area.

Number of moisture laden locations = 57 spots up to 1 sq.ft. and 39 areas up to 175 sq. ft.

**Roof 7** = 7,504 ± sq.ft.

Dry insulation = 7,328 ± sq.ft. or 98% of the roof area.

Damp to wet insulation = 176 ± sq.ft. or 2% of the roof area.

Number of moisture laden locations = 6 areas up to 60 sq. ft.

**Roof 8** = 908 ± sq.ft.

Dry insulation = 260 ± sq.ft. or 29% of the roof area.

Damp to wet insulation = 648 ± sq.ft. or 71% of the roof area.

Number of moisture laden locations = 6 spots up to 1 sq.ft. and 2 areas up to 600 sq. ft.



**Roof 9** = 4,149 ± sq.ft.

Dry insulation = 3,814 ± sq.ft. or 88% of the roof area.

Damp to wet insulation = 335 ± sq.ft. or 12% of the roof area.

Number of moisture laden locations = 3 spots up to 1 sq.ft. and 2 areas up to 192 sq. ft.

**Roof 10** = 4,247 ± sq.ft.

Dry insulation = 4,240 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 7 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 1 spot up to 1 sq.ft. and 1 area up to 6 sq. ft.

**Roof 11** = 3,016 ± sq.ft.

Dry insulation = 2,630 ± sq.ft. or 87% of the roof area.

Damp to wet insulation = 386 ± sq.ft. or 13% of the roof area.

Number of moisture laden locations = 27 spots up to 1 sq.ft. and 17 areas up to 144 sq. ft.

**Roof 12** = 21,679 ± sq.ft.

Dry insulation = 19,623 ± sq.ft. or 90% of the roof area.

Damp to wet insulation = 2,056 ± sq.ft. or 10% of the roof area.

Number of moisture laden locations = 5 spots up to 1 sq.ft. and 5 areas up to 1,800 sq. ft.

**Roof 13** = 684 ± sq.ft.

Dry insulation = 308 ± sq.ft. or 45% of the roof area.

Damp to wet insulation = 376 ± sq.ft. or 55% of the roof area.

Number of moisture laden locations = 3 spots up to 1 sq.ft. and 3 areas up to 220 sq. ft.

**Roof 14** = 3,589 ± sq.ft.

Dry insulation = 3,585 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 4 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 1 spot up to 1 sq.ft. and 1 area up to 3 sq. ft.



**Roof 15** = 7,927 ± sq.ft.

Dry insulation = 7,661 ± sq.ft. or 97% of the roof area.

Damp to wet insulation = 266 ± sq.ft. or 3% of the roof area.

Number of moisture laden locations = 1 spot up to 1 sq.ft. and 9 areas up to 180 sq. ft.

**Project Total** = 72,234 ± sq.ft.

Dry insulation = 66,919 ± sq.ft. or 93% of the roof area.

Damp to wet insulation = 5,315 ± sq.ft. or 7% of the roof area.

Number of moisture laden locations = 165 spots up to 1 sq.ft. and 120 areas up to 1,800 sq. ft.

## **Summary**

The moisture survey indicates as accurately as existing conditions permit, the subsurface conditions of the roofs at the time the survey was conducted.

If there will be a long delay between the time the survey was conducted and when the repair or replacement work will begin, we suggest the wet areas be remarked with spray paint before the paint that defines the areas fades away. The paint that was applied during the survey should last at least 3 to 6 months before repainting may be required.

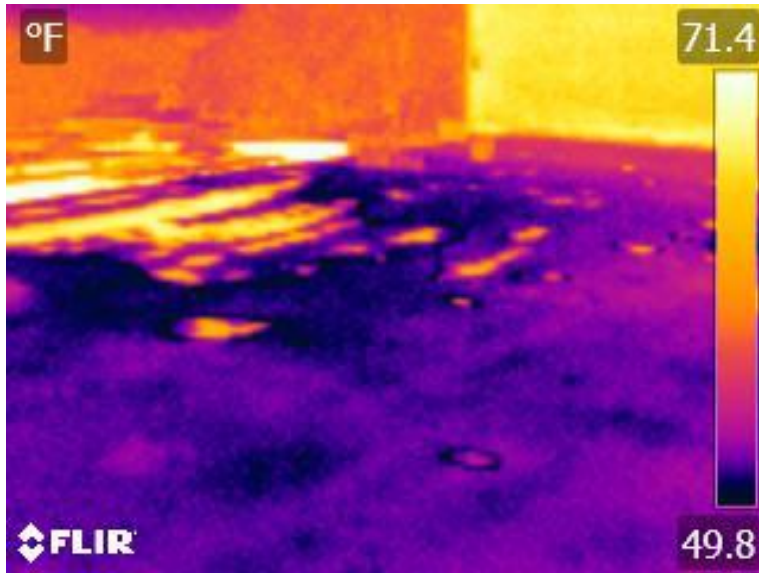
If the moisture laden insulation is to be removed as part of a repair or replacement project, we suggest that it would be advisable to increase the known quantity by a certain percentage to allow for undetected moisture, if any, and for moisture that may enter the system after the survey was completed.

**END OF SECTION**



# Thermograms

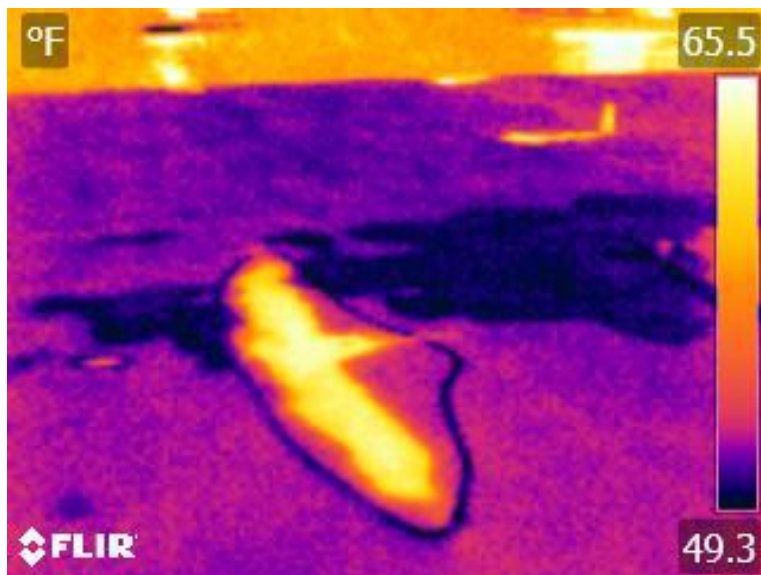
Thermograms were taken of roof areas and select anomalies located during the survey. The bright orange/yellow areas indicate spots/areas of moisture intrusion while the black/purple areas indicate a dry roof condition. The majority of thermograms taken during this survey show groups of wet and/or random wet areas relative to their locations which are identified on the accompanying drawing.



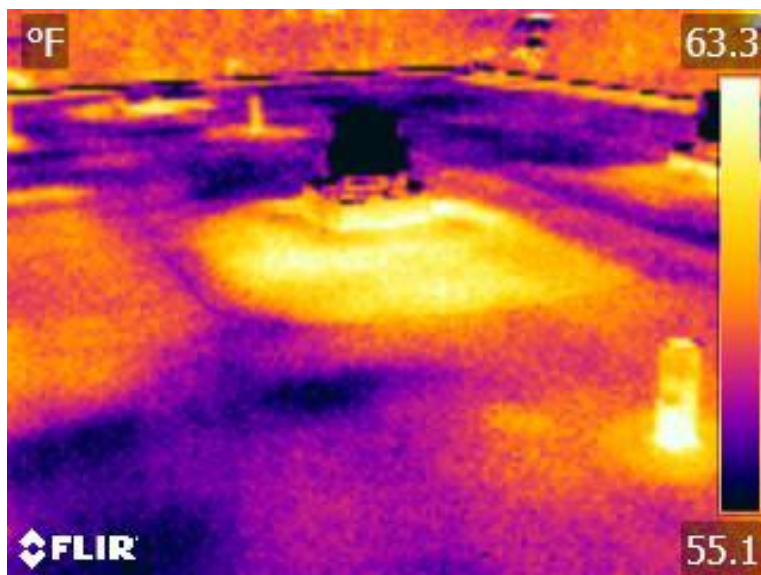
Thermogram 1

Thermogram 2 – Not used



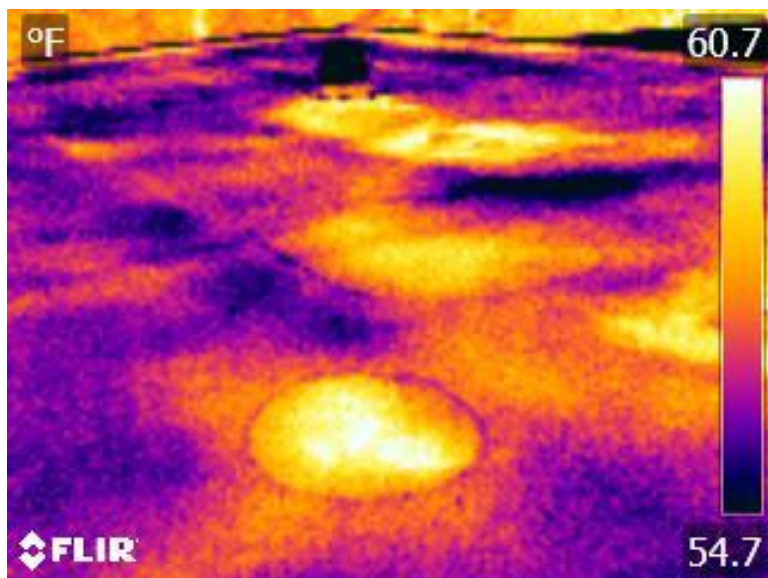


Thermogram 3

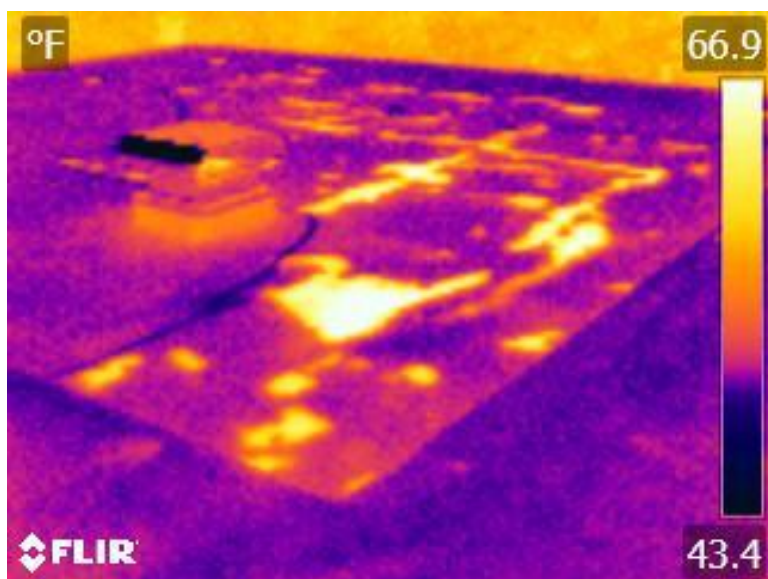


Thermogram 4



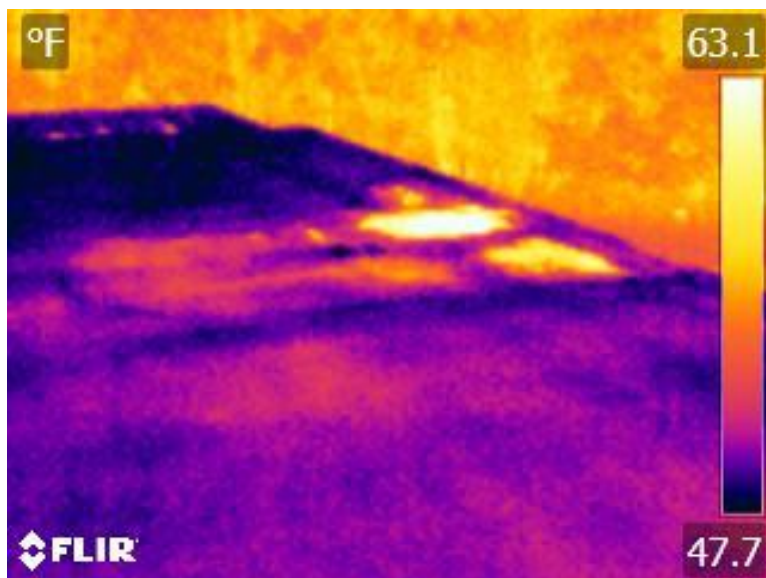


Thermogram 5

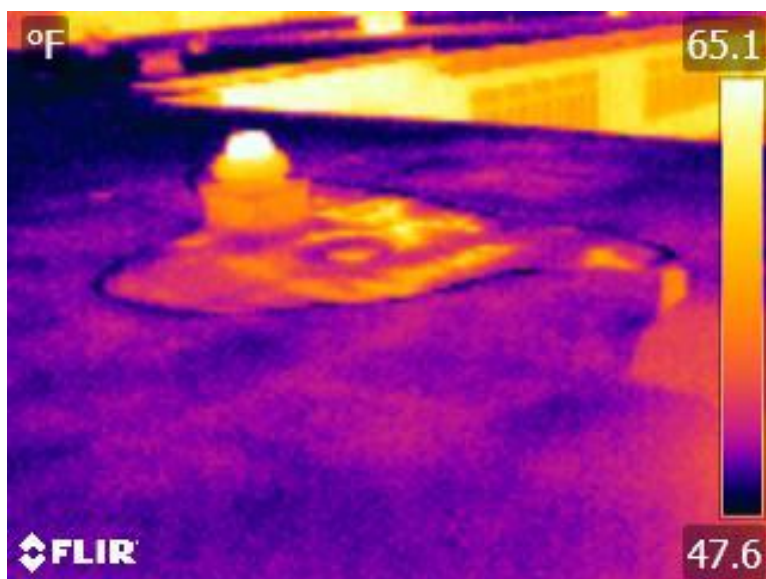


Thermogram 6



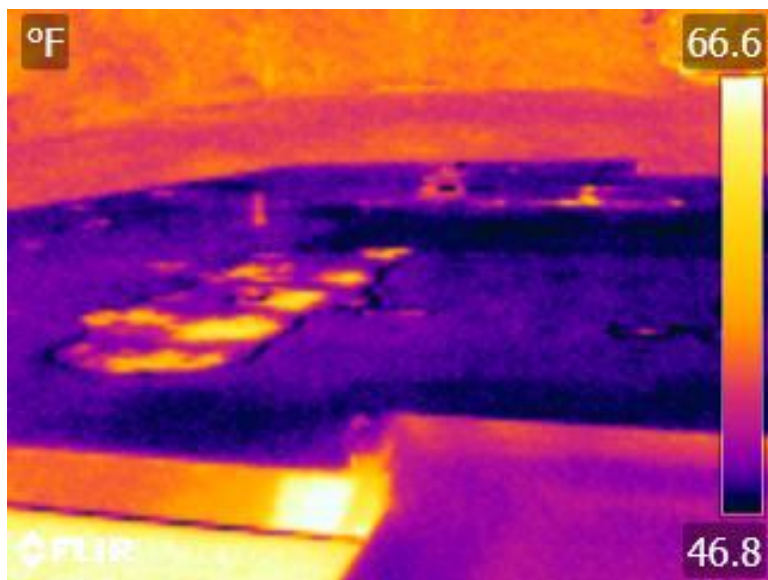


Thermogram 7

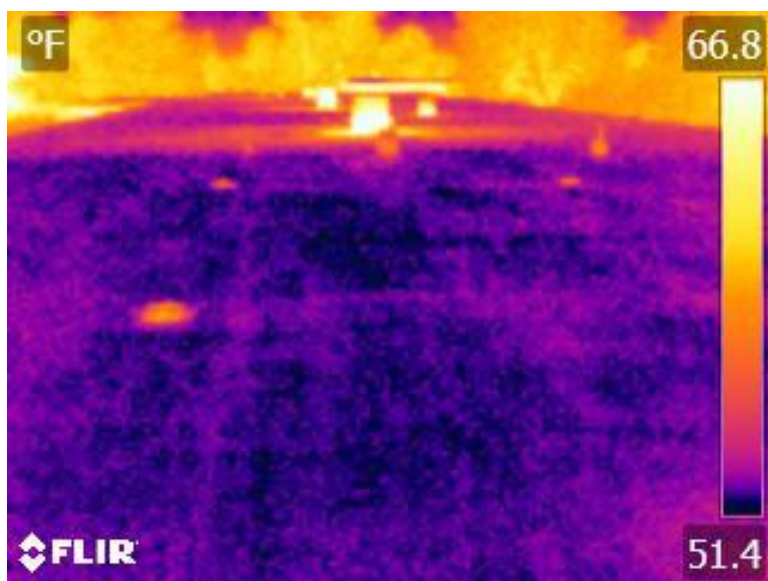


Thermogram 8



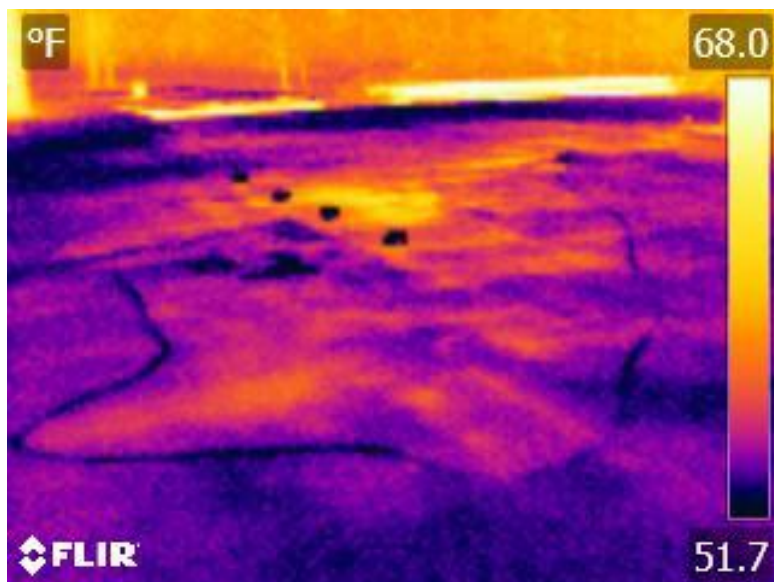


Thermogram 9

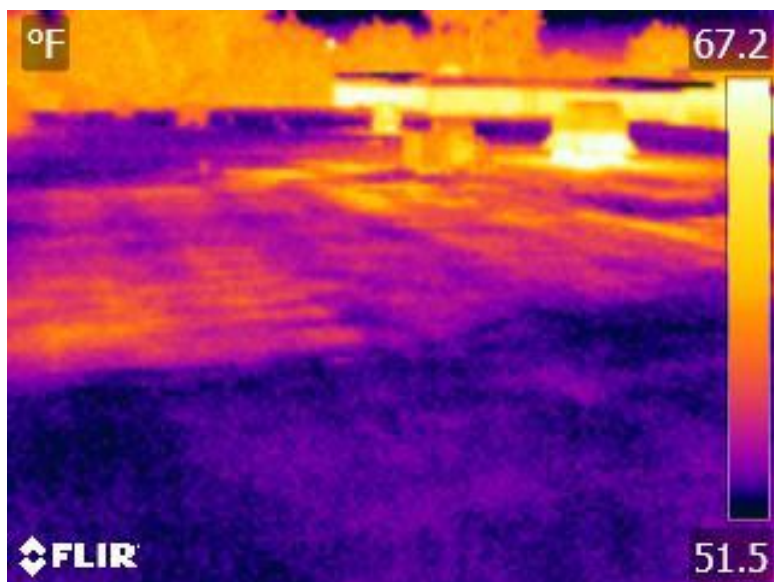


Thermogram 10



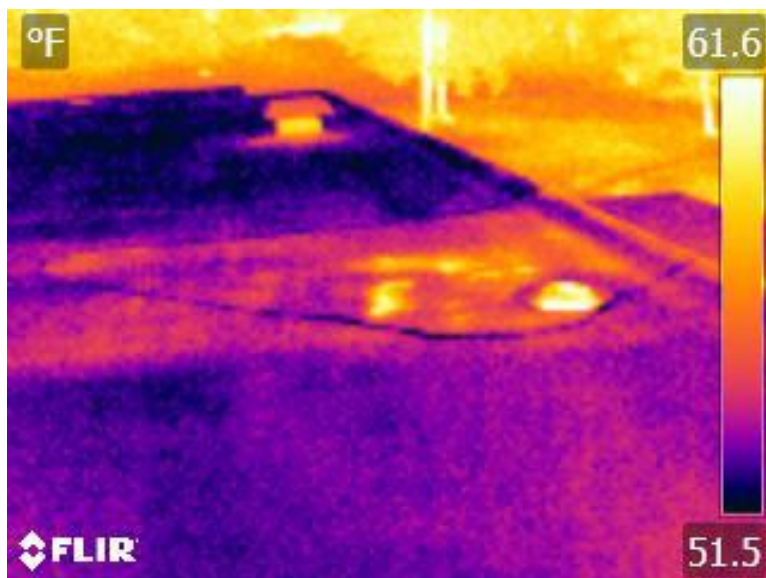


Thermogram 11

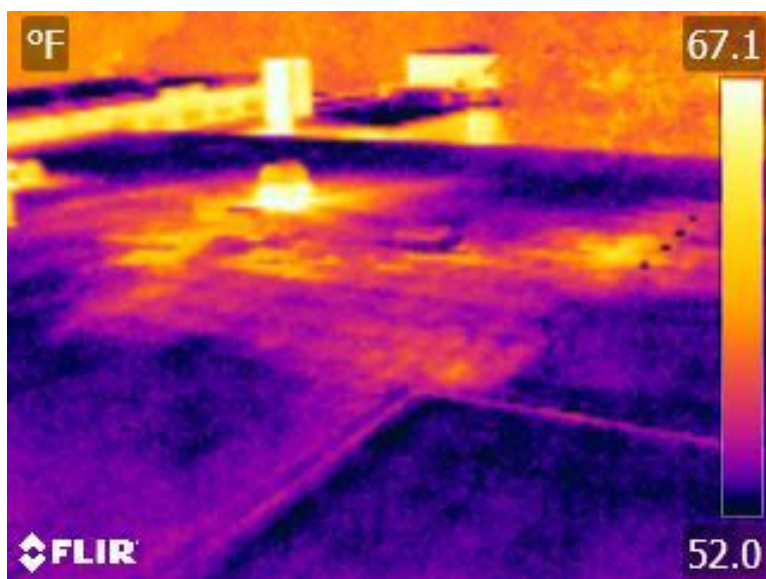


Thermogram 12



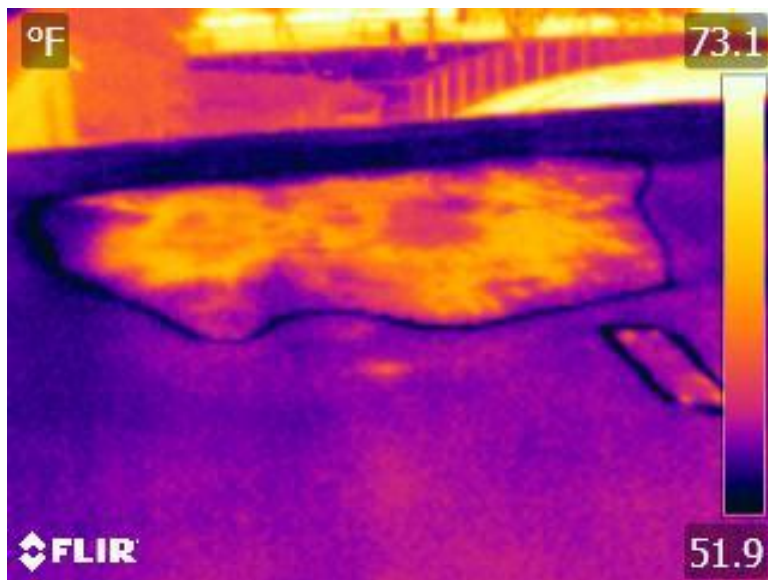


Thermogram 13

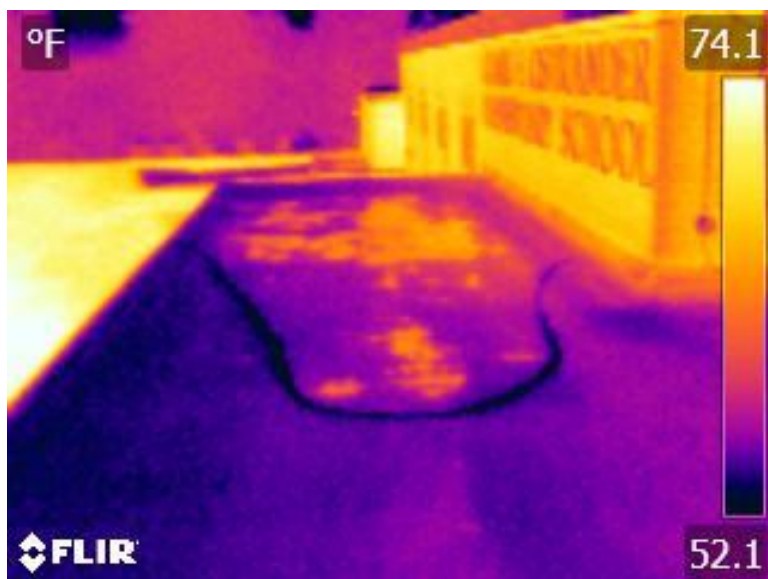


Thermogram 14



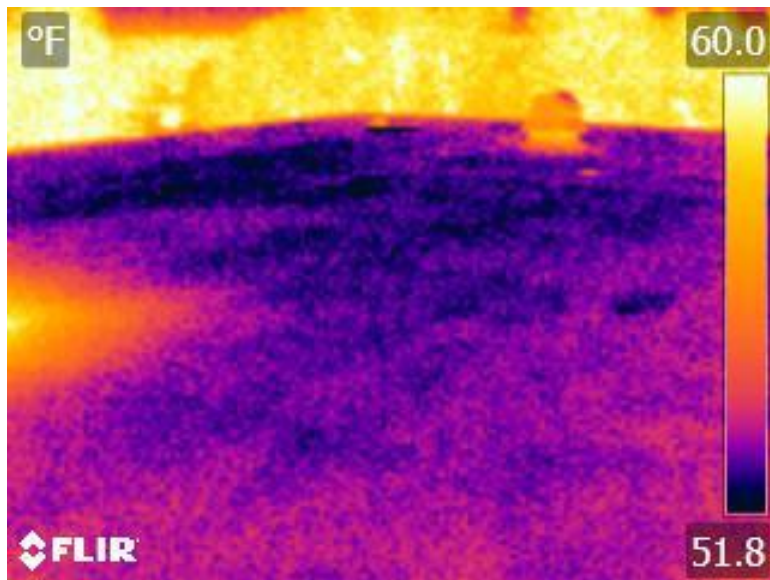


Thermogram 15



Thermogram 16



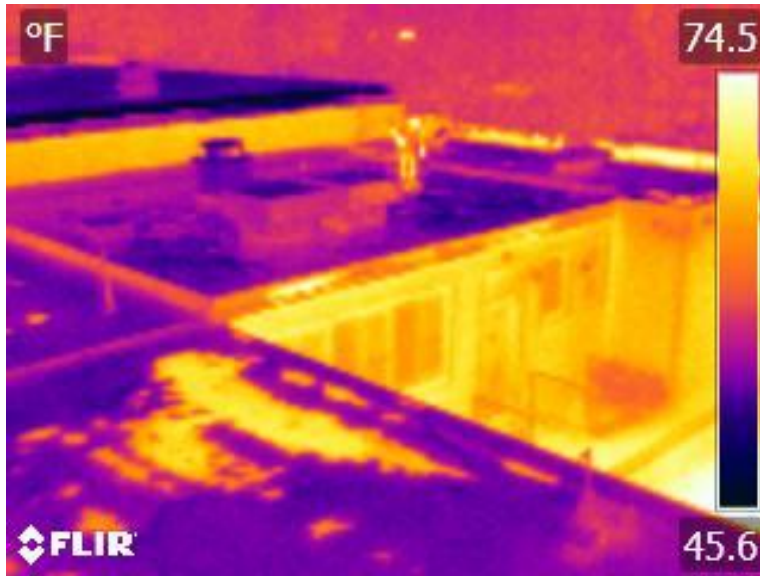


Thermogram 17



Thermogram 18





**Thermogram 19**



**Thermogram 20**

**END OF REPORT**

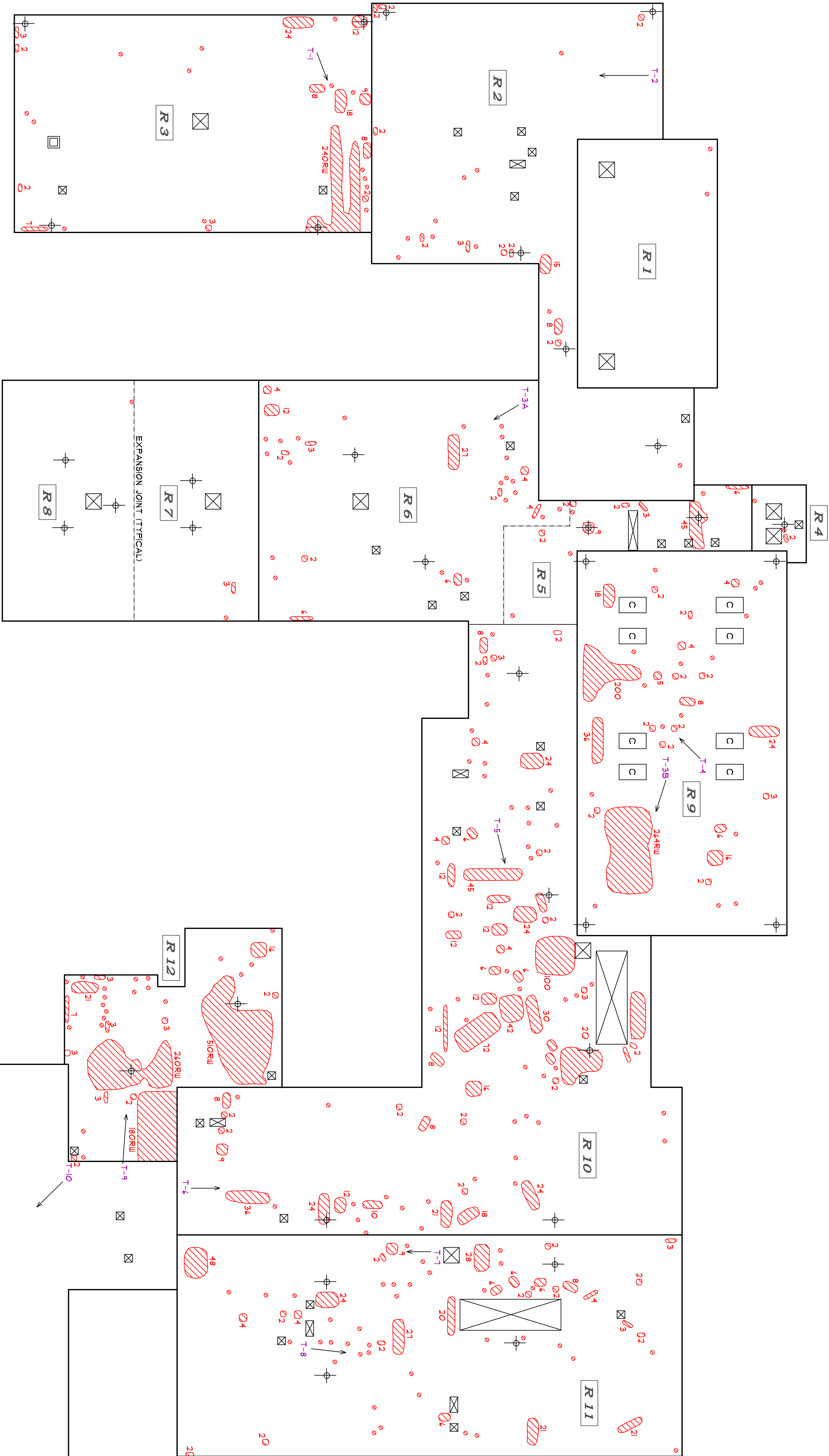


## GENERAL NOTES

- ON ALL ROOFS, AN INFRARED CAMERA WAS USED TO SURVEY THE INSULATION IN THE ROOF SYSTEM, WHERE NECESSARY NUCLEAR METER READINGS WERE TAKEN TO VERIFY THE FINDINGS OF THE INFRARED CAMERA.
- WET AREAS ARE IDENTIFIED ON ROOF PLANS BY HATCHING. IRREGULARLY SHAPED WET AREAS HAVE BEEN SQUARED OFF.
- WET AREAS ARE IDENTIFIED ON ROOF PLAN LOCATIONS.
- ALL ROOF TOP EQUIPMENT MAY NOT HAVE BEEN SHOWN.
- ALL EQUIPMENT LOCATIONS APPROXIMATE.

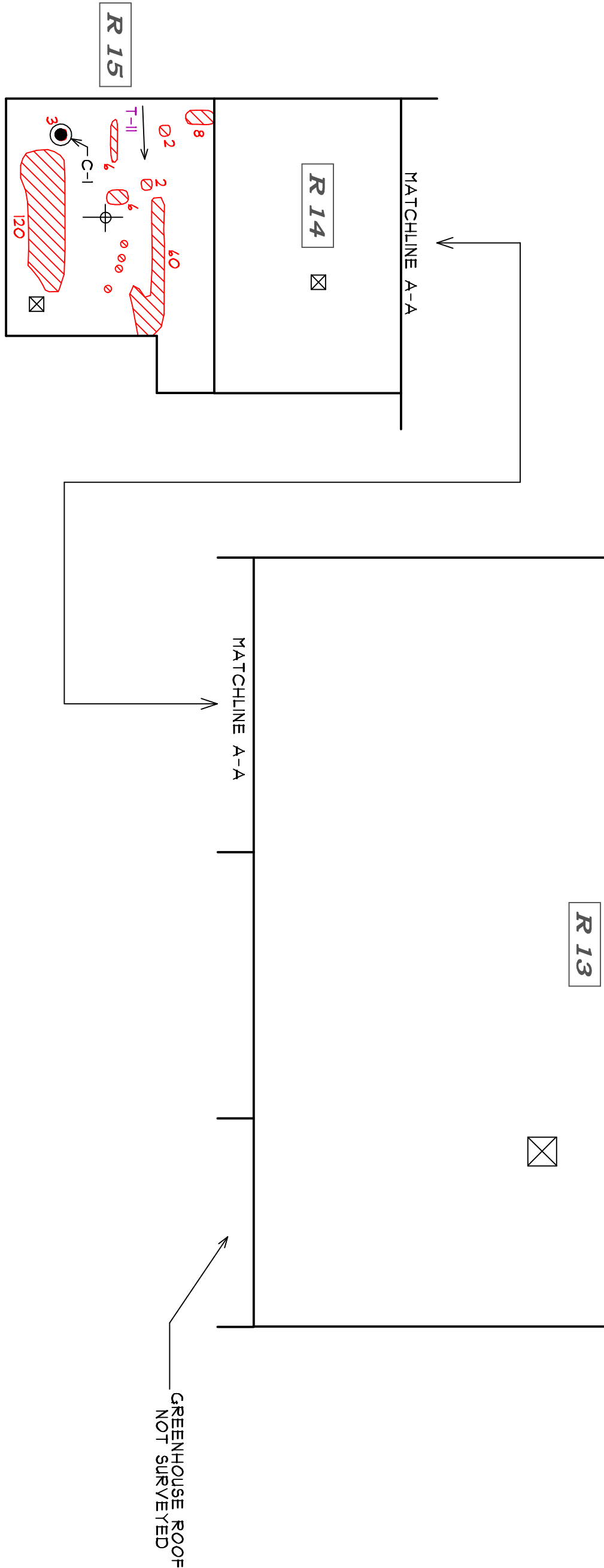
## PLAN SYMBOLS

- DRY INSULATION
- 1 SQ. FT. OR LESS OF WET INSULATION
- 25 DAMP TO WET INSULATION
- NUMBER ADJACENT TO SYMBOL INDICATES APPROXIMATE SIZE OF WET AREA IN SQUARE FEET.
- 25RW RANDOM WET AREA
- RANDOM WET DEFINES AN AREA THAT CONTAINS A CLOSELY GROUPED MIXTURE OF DRY DAMP AND WET INSULATION. THE RANDOM DISPERSMENT OF THE DAMP AND WET INSULATION MAKES IT IMPOSSIBLE OR IMPRACTICAL TO ISOLATE AND IDENTIFY EACH DAMP OR WET SPOT.
- TEST CORE
- T-1 THERMOGRAM
- ⊕ ROOF DRAIN
- ⊠ ROOF TOP EQUIPMENT



## ROOF PLAN - WALLKILL CSD - PLATTEKILL ELEMENTARY SCHOOL

SCALE : 1/4" = 1' - 0"





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# **Infrared Roof Moisture Survey**

## **Wallkill Central School District Plattekill Elementary School**

**Date:**

May 23, 2022

**Prepared For:**

Tetra Tech Architects & Engineers  
10 Brown Road  
Ithaca, NY 14850

**Prepared By:**

***ROOF SCAN, Inc.***

72 Phillips Road  
Valley Falls, NY 12185

(518) 441 - 3659

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# ***Table of Contents***

- 1. Operating Principles of Moisture Detection Equipment**
- 2. Moisture Survey Procedures**
- 3. Moisture Survey Report**
- 4. Thermograms**
- 5. Roof Plan**



# **Operating Principles of Moisture Detection Equipment**

## **Troxler 3216 Nuclear Moisture Detector:**

The Nuclear Moisture Detector is an extremely accurate and sensitive device specifically designed for performing non-destructive roof moisture surveys. The nuclear detector can detect very small quantities of moisture regardless of where it is located within the roof system. This enables the detector to, in most cases, differentiate between damp and wet insulation. The maximum operating depth is about 8 inches. Contradictory to its name, the moisture detector does not directly measure or detect moisture. The instrument locates moisture by seeking out hydrogen atoms. Hydrogen atoms are present in organic materials and are most abundant in water.

A radioactive source of Americium 241:Beryllium is encapsulated and sealed within the instrument. When the instrument is activated, fast neutrons are produced by exposing the Americium to the Beryllium. The fast neutrons collide with hydrogen atoms and are "thermalized" or slowed down. The meter measures the rate of collision for a pre-set time period, similar to radar, and displays the count on a digital periodic rate meter. Since all hydrogen bearing materials contribute to the count rate, the meter must be calibrated for each roof to obtain absolute moisture readings and to keep operator interpretation to a minimum.

## **Flir E8 and E30bx Infrared Cameras:**

This system measures temperature differentials found on the roof surface by detecting infrared radiation which is converted to an electrical signal and then to a video signal that is displayed on a small screen. Wet areas absorb and hold heat from solar radiation and from building heat loss longer than dry areas do. This is because wet insulation is a better conductor of heat than dry insulation is. Dry areas cool off quickly and therefore do not readily absorb and hold heat. The infrared camera locates the wet insulation by detecting the surface temperature differences between the wet and dry areas.

**END OF SECTION**



# **Moisture Survey Procedures**

**The following procedures were used to conduct this moisture survey:**

1. The roof was scanned with an Infrared Camera. The moisture contours of all wet areas were marked on the roof surface with orange spray paint.
2. A roof plan was drawn to scale showing all roof top equipment and the locations and contours of all moisture laden insulation.
3. Thermograms were taken at selected anomalies.
4. As a final verification of the moisture testing, one or more core samples were taken to verify the conditions and to determine the exact roof construction.
5. This report defines; the roof construction and the conditions of the roof system at the core locations, and the square footage and percent of total roof area containing dry insulation and moisture laden insulation.

**END OF SECTION**



# **Moisture Survey Report**

## **Scope of Survey**

The intent of the survey was to document the location and extent of moisture intrusion into the roof system.

## **Anomalies**

The roof system was scanned with a Flir E8 and a Flir E30bx infrared camera. The locations and contours of all anomalies have been marked on the roof surface with pink paint. Moisture content of the anomalies were verified using the nuclear moisture gauge. Thermograms of some of the anomalies are shown in this report

## **Thermograms**

Thermograms are heat images taken with the infrared camera. Thermograms were taken of several anomalies located during the survey. The locations of the thermograms can be found on the drawing.

## **Core Sample Construction & Moisture Content**

### **Roof 2 @ Core 1**

- Granular Surface Silicone Membrane
- 2"± Spray-In-Place Urethane Foam Insulation (**wet**)
- 5/8" Gypsum Board (**dry**)
- Steel Deck

## **Moisture Quantities**

The subsurface moisture content of the roof system expressed in sq.ft., percentage of roof area, and number of moisture laden locations is as follows:

**Roof 1** = 2,304 ± sq.ft.

Dry insulation = 2,302 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 2 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 2 spots up to 1 sq.ft.

**Roof 2** = 5,805 ± sq.ft.

Dry insulation = 5,748 ± sq.ft. or 99% of the roof area.

Damp to wet insulation = 57 ± sq.ft. or 1% of the roof area.

Number of moisture laden locations = 11 spots up to 1 sq.ft. and 12 areas up to 15 sq. ft.



**Roof 3** = 5,152 ± sq.ft.

Dry insulation = 4,800 ± sq.ft. or 93% of the roof area.

Damp to wet insulation = 352 ± sq.ft. or 7% of the roof area.

Number of moisture laden locations = 14 spots up to 1 sq.ft. and 13 areas up to 240 sq. ft.

**Roof 4** = 253 ± sq.ft.

Dry insulation = 249 ± sq.ft. or 98% of the roof area.

Damp to wet insulation = 4 ± sq.ft. or 2% of the roof area.

Number of moisture laden locations = 2 spots up to 1 sq.ft. and 1 area up to 2 sq. ft.

**Roof 5** = 1,029 ± sq.ft.

Dry insulation = 956 ± sq.ft. or 93% of the roof area.

Damp to wet insulation = 73 ± sq.ft. or 7% of the roof area.

Number of moisture laden locations = 4 spots up to 1 sq.ft. and 7 areas up to 45 sq. ft.

**Roof 6** = 4,406 ± sq.ft.

Dry insulation = 4,317 ± sq.ft. or 98% of the roof area.

Damp to wet insulation = 92 ± sq.ft. or 2% of the roof area.

Number of moisture laden locations = 20 spots up to 1 sq.ft. and 11 areas up to 27 sq. ft.

**Roof 7** = 2,108 ± sq.ft.

Dry insulation = 2,104 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 4 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 1 spots up to 1 sq.ft. and 1 areas up to 3 sq. ft.

**Roof 8** = 1,984 ± sq.ft.

Dry insulation = 1,983 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 1 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 1 spot up to 1 sq.ft.



**Roof 9** = 5,346 ± sq.ft.

Dry insulation = 4,728 ± sq.ft. or 88% of the roof area.

Damp to wet insulation = 618 ± sq.ft. or 12% of the roof area.

Number of moisture laden locations = 15 spot up to 1 sq.ft. and 21 areas up to 264 sq. ft.

**Roof 10** = 10,160 ± sq.ft.

Dry insulation = 9,272 ± sq.ft. or 91% of the roof area.

Damp to wet insulation = 888 ± sq.ft. or 9% of the roof area.

Number of moisture laden locations = 46 spots up to 1 sq.ft. and 52 areas up to 100 sq. ft.

**Roof 11** = 7,408 ± sq.ft.

Dry insulation = 7,103 ± sq.ft. or 96% of the roof area.

Damp to wet insulation = 305 ± sq.ft. or 4% of the roof area.

Number of moisture laden locations = 37 spots up to 1 sq.ft. and 28 areas up to 48 sq. ft.

**Roof 12** = 2,427 ± sq.ft.

Dry insulation = 1,392 ± sq.ft. or 57% of the roof area.

Damp to wet insulation = 1,035 ± sq.ft. or 43% of the roof area.

Number of moisture laden locations = 20 spots up to 1 sq.ft. and 14 areas up to 510 sq. ft.

**Roof 13** = 9,156 ± sq.ft.

Dry insulation = 9,154 ± sq.ft. or >99% of the roof area.

Damp to wet insulation = 2 ± sq.ft. or <1% of the roof area.

Number of moisture laden locations = 1 area up to 2 sq. ft.

**Roof 14** = 1,065 ± sq.ft.

Dry insulation = 1,065 ± sq.ft. or 100% of the roof area.

**Roof 15** = 1,020 ± sq.ft.

Dry insulation = 809 ± sq.ft. or 79% of the roof area.

Damp to wet insulation = 211 ± sq.ft. or 21% of the roof area.

Number of moisture laden locations = 4 spots up to 1 sq.ft. and 8 areas up to 120 sq. ft.



**Project Total** = 59,623 ± sq.ft.

Dry insulation = 55,979 ± sq.ft. or 94% of the roof area.

Damp to wet insulation = 3,644 ± sq.ft. or 6% of the roof area.

Number of moisture laden locations = 177 spots up to 1 sq.ft. and 169 areas up to 510 sq. ft.

## **Summary**

The moisture survey indicates as accurately as existing conditions permit, the subsurface conditions of the roofs at the time the survey was conducted.

If there will be a long delay between the time the survey was conducted and when the repair or replacement work will begin, we suggest the wet areas be remarked with spray paint before the paint that defines the areas fades away. The paint that was applied during the survey should last at least 3 to 6 months before repainting may be required.

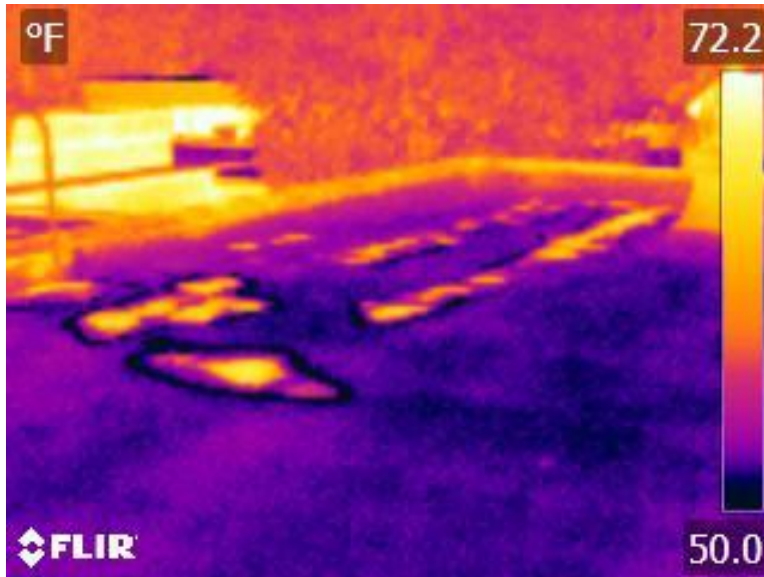
If the moisture laden insulation is to be removed as part of a repair or replacement project, we suggest that it would be advisable to increase the known quantity by a certain percentage to allow for undetected moisture, if any, and for moisture that may enter the system after the survey was completed.

**END OF SECTION**

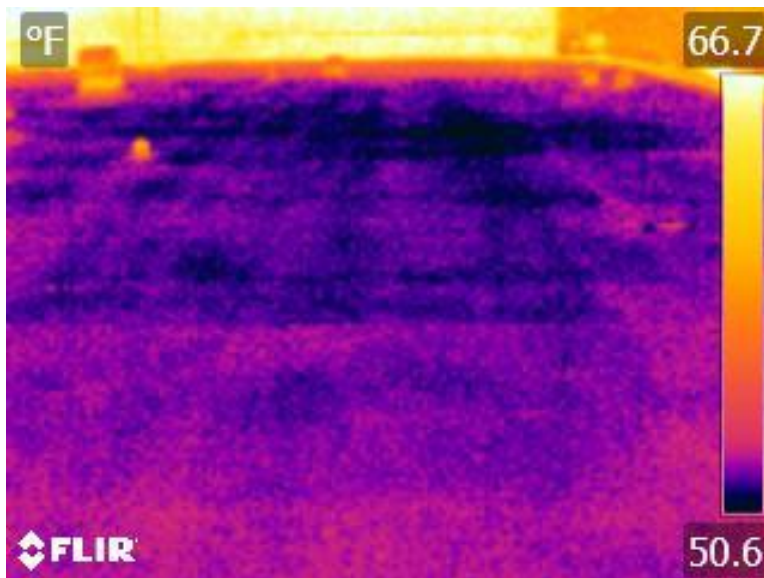


# Thermograms

Thermograms were taken of roof areas and select anomalies located during the survey. The bright orange/yellow areas indicate spots/areas of moisture intrusion while the black/purple areas indicate a dry roof condition. The majority of thermograms taken during this survey show groups of wet and/or random wet areas relative to their locations which are identified on the accompanying drawing.

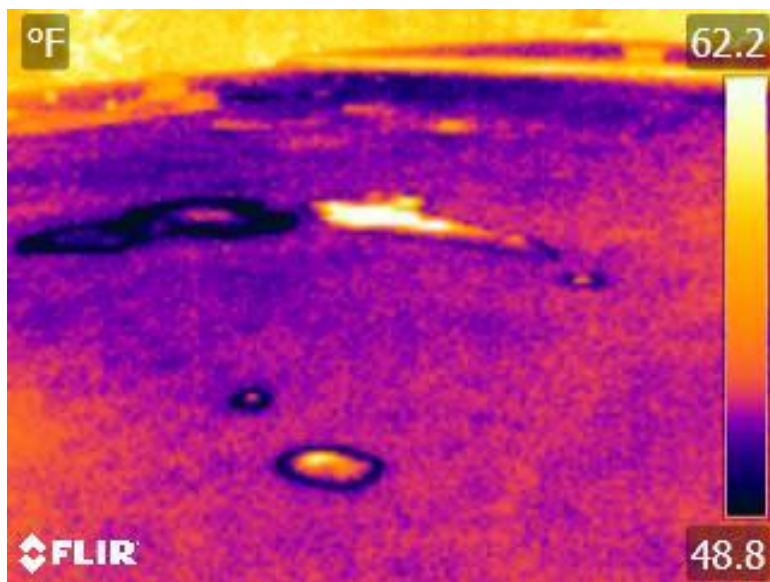


Thermogram 1

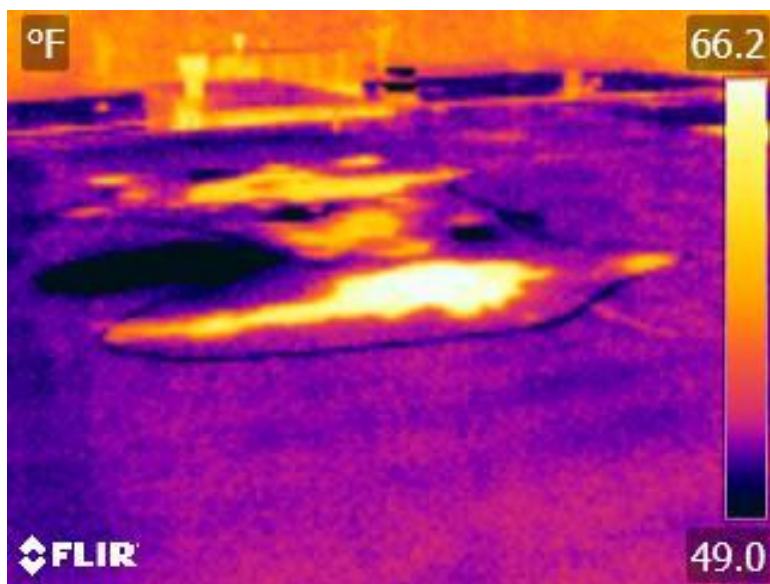


Thermogram 2



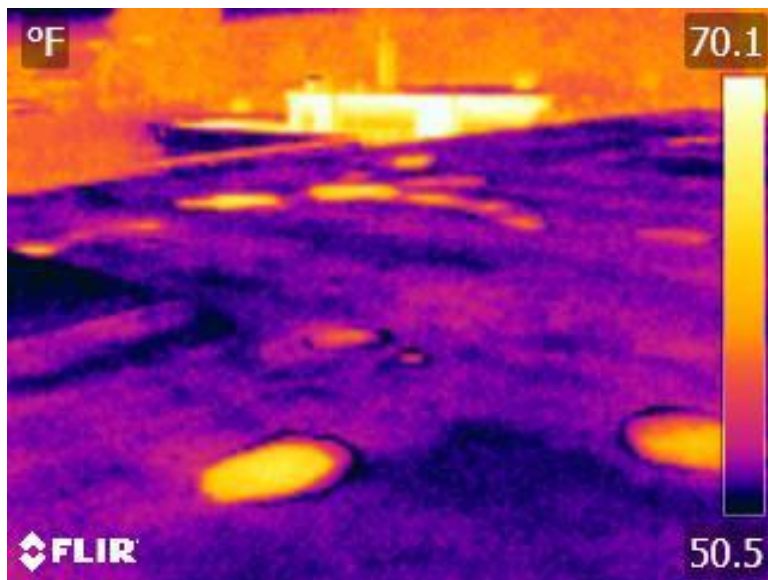


Thermogram 3A

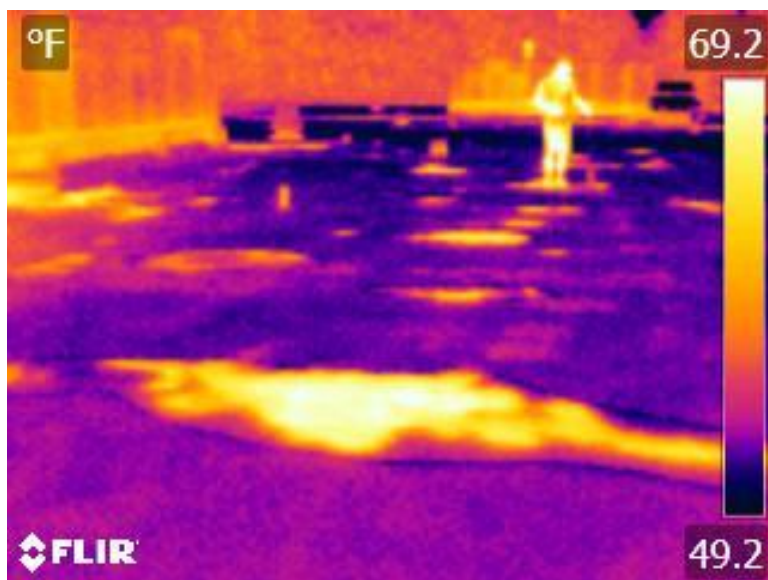


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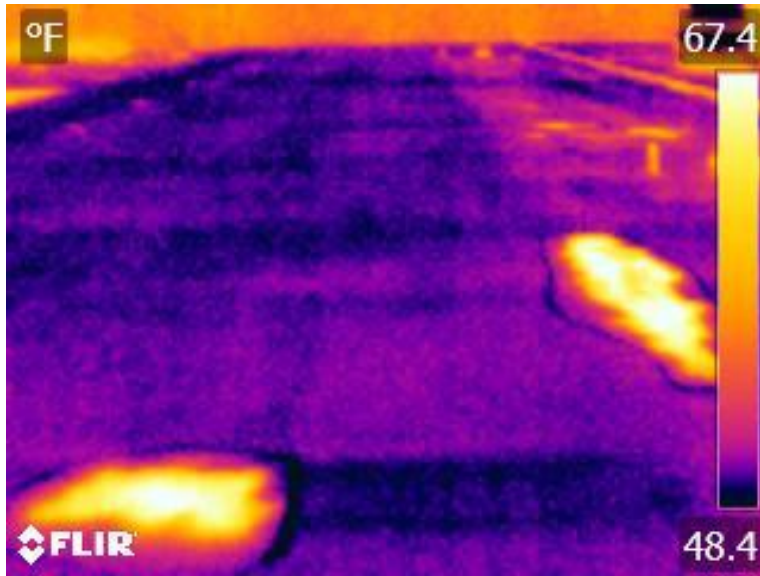


Thermogram 4

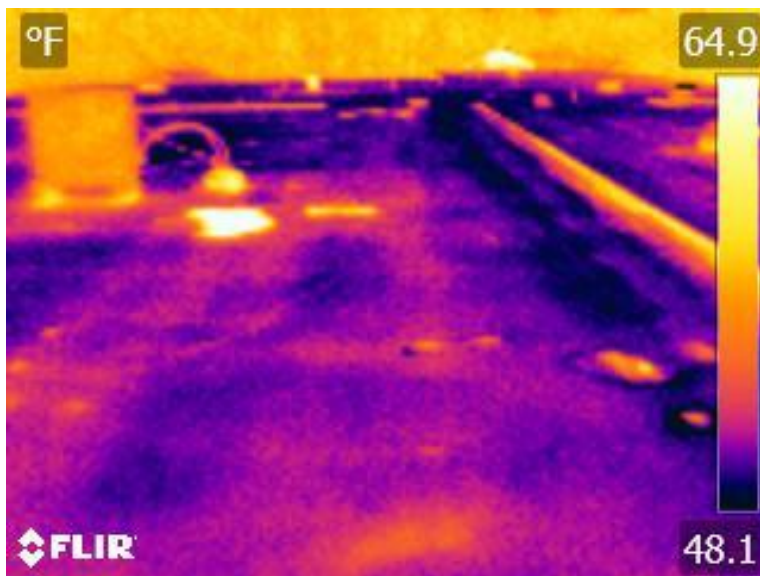


Thermogram 5



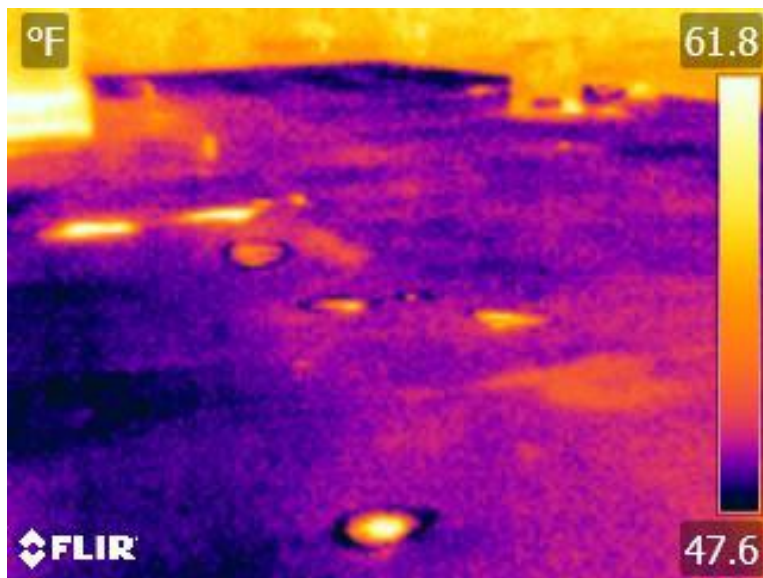


Thermogram 6

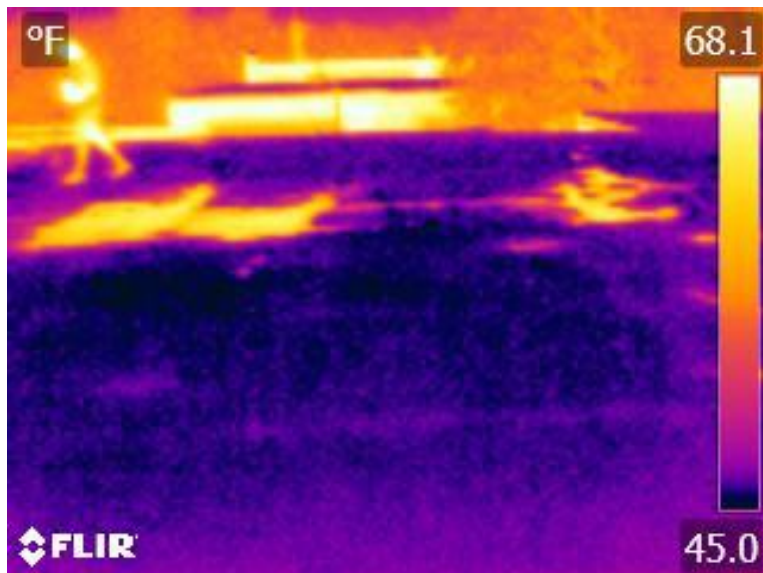


Thermogram 7



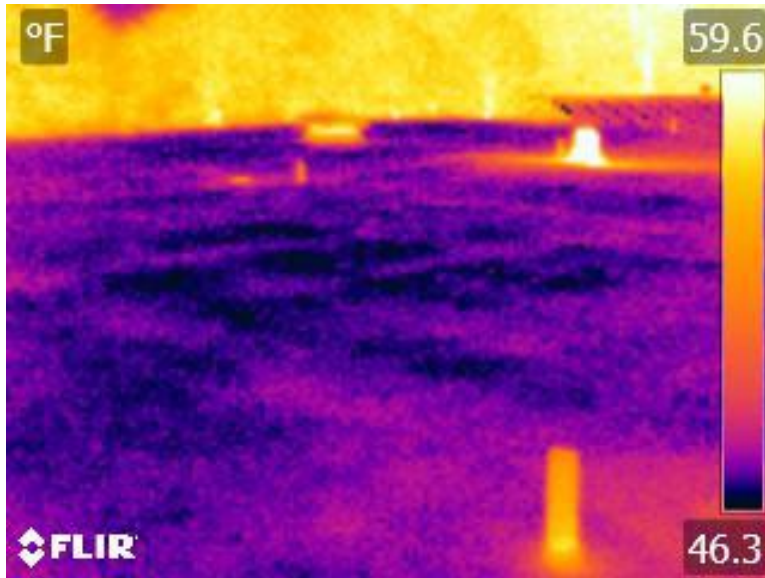


Thermogram 8

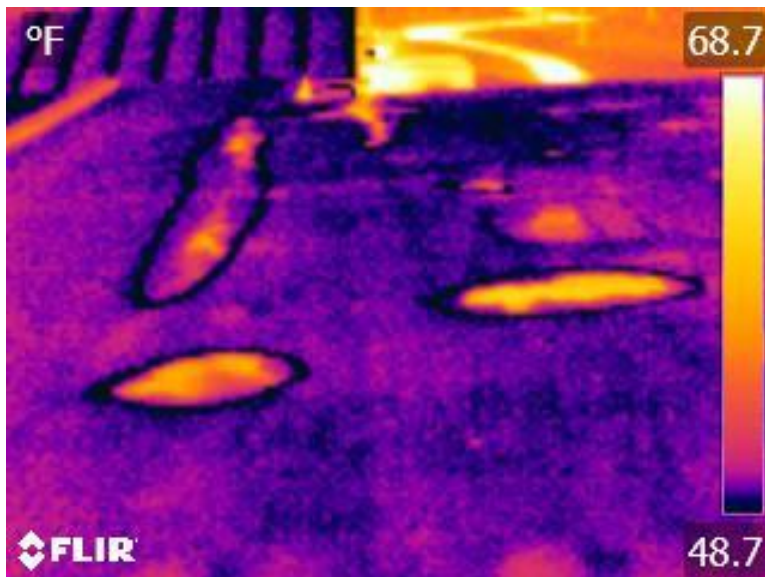


Thermogram 9





Thermogram 10



Thermogram 11

END OF REPORT



## **SECTION 07 71 00 - ROOF SPECIALTIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:

- 1. Roof-edge specialties.

- B. Preinstallation Conference: Conduct conference at Project site.

- 1. Meet with Owner, Architect, Installer, and installers whose work interfaces with or affects roof specialties.
  - 2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
  - 3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section and by Division 07 Sections "EPDM Roofing" concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

- 1. Fasteners.
  - 2. Canted roof-edge fascia.
  - 3. Underlayment membrane.

- B. Shop Drawings: For roof specialties.

- 1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
  - 2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
  - 3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
  - 4. Detail termination points and assemblies, including fixed points.
  - 5. Include details of special conditions.



- C. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.
- D. Samples for Verification: For each type of roof specialty indicated, made from 12-inch lengths of full-size components in specified material, and including fasteners, cover joints, accessories, and attachments, and full-size roof drain inserts, as follows:
  - 1. Roof-edge specialties.
- E. Sample Warranty: For manufacturer's special warranty.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Certificates: For each type of roof specialty, as required by Division 07 Section "EPDM Roofing" certifying that each item complies with requirements specified in "Performance Requirements" Article.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing specialties to include in maintenance manuals.
- B. Warranty: Executed special warranty.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
- B. Furnish not less than four 12-foot-long sections of fascia covers and fascia extenders.

#### 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class and ANSI/SPRI ES-1 tested to specified design pressure.
- B. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty specified in Division 07 Sections "EPDM Roofing".

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.



## 1.10 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

## 1.11 WARRANTY

- A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Division 07 Section "EPDM Roofing".
- B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. FM Approvals' Listing: Manufacture and install roof-edge specialties that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with FM Approvals' markings.
- C. SPRI Wind Design Standard: Manufacture and install roof-edge specialties tested and certified according to ANSI/SPRI ES-1 (Test Methods RE-1, RE-2, and RE-3, as applicable) to comply with the Building Code of New York State which references ASCE/SEI 7, and capable of meeting the wind load design criteria indicated on the Drawings.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.



## 2.2 ROOF-EDGE SPECIALTIES

- A. Canted Roof-Edge Fascia: Manufactured, roof-edge fascia system with a snap-on metal fascia cover in longest uniform section lengths not exceeding 12 feet. Provide matching corner units.
1. Provide one of the following types of canted roof-edge fascia systems to meet wind speed requirements or to comply with roofing system manufacturer's warranty requirements:
    - a. Two-Piece Canted Roof-Edge Fascia: Two-piece fascia system with a continuous formed galvanized steel sheet cant, 0.028 inch thick (24 gage), minimum, with extended vertical leg terminating in a drip edge cleat.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
        - a) Carlisle SynTec Systems; SecurEdge 200 Fascia System.
        - b) Firestone Building Products Company, LLC; EdgeGard +.
        - c) Johns Manville; Fascia System 200.
    - b. Three-Piece Canted Roof Edge Fascia: Three-piece fascia system with a continuous extruded aluminum anchor bar with extended vertical leg terminating in a drip edge cleat and continuous formed galvanized steel sheet canted waterdam, 0.028 inch thick (24 gage), minimum.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
        - a) Carlisle SynTec Systems; SecurEdge 2000 Canted Fascia.
        - b) Firestone Building Products Company, LLC; AnchorGard Canted Fascia.
        - c) Johns Manville; Presto-Tite Canted Fascia.
  2. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, not less than 0.050 inch thick and as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Two-coat fluoropolymer or Clear anodic to be selected by Architect.
    - c. Color: As selected by Architect from manufacturer's full range.
  3. Corners: Factory mitered and continuously welded, not less than 2 feet long in each direction.
  4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.



5. Fascia Accessories: Provide the following from the fascia system manufacturer:

- a. Fascia Extenders: Manufactured, two-piece fascia extender with metal fascia extension in longest uniform section lengths practical not exceeding 12 feet and continuous formed galvanized steel sheet hold-down cleats, 0.028 inch thick (24 gage), minimum, with extended vertical leg terminating in a drip edge cleat. Provide matching corner units.
  - 1) Formed Aluminum: Not less than 0.050 inch thick, with pre-punched slotted holes at 12 inches o.c. at top edge, finished to match fascia cover.
  - 2) Corners: Factory mitered and continuously welded, not less than 2 feet long in each direction.
  - 3) Splice Plates: Concealed, of same material, finish, and shape as fascia extension.
- b. Soffit Trim: Manufactured metal trim as indicated on Drawings, of same material and finish as fascia cover.

## 2.3 MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.
- B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.
- C. Aluminum Extrusions: ASTM B221, alloy and temper recommended by manufacturer for type of use and finish indicated.

## 2.4 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Carlisle WIP Products; a brand of Carlisle Construction Materials; WIP 300HT.
    - b. GCP Applied Technologies Inc.; Grace Ultra.
    - c. Henry Company; Blueskin PE200HT High Temperature Roof Underlayment.
  - 2. Thermal Stability: ASTM D1970/D1970M; stable after testing at 240 deg F.
  - 3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F.



## 2.5 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
  - 1. Exposed Penetrating Fasteners: Not permitted.
  - 2. Fasteners for Aluminum: Series 300 stainless steel.
  - 3. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel.
- B. Elastomeric Sealant: ASTM C920, elastomeric polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

## 2.6 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Coil-Coated Aluminum Sheet Finishes:
  - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
  - 2. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, parapets, and roof edges for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.



- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
  - 1. Apply continuously under copings roof-edge specialties unless EPDM underlayment membrane is shown.

### 3.3 INSTALLATION, GENERAL

- A. Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
  - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Provide uniform, neat seams with minimum exposure of sealant.
  - 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
  - 4. Torch cutting of roof specialties is not permitted.
  - 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with self-adhering sheet underlayment or by other permanent separation as recommended by manufacturer.
  - 1. Underlayment: Where installing metal directly on cementitious or wood substrates, install a course of self-adhering sheet underlayment.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
  - 1. Space movement joints at a maximum of 12 feet with no joints within 24 inches of corners or intersections unless otherwise indicated on Drawings.
  - 2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
  - 3. Loose-nail fascia extender at center of pre-punched slotted hole; do not draw nail tight.
  - 4. Stagger joints in fascia from those in fascia extender by not less than 24 inches.



- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.

### 3.4 INSTALLATION OF ROOF-EDGE SPECIALITIES

- A. Install fully adhered EPDM membrane with mechanically attached terminations below all copings as indicated on Drawings.
- B. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.
- C. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
- D. Strip-in cleat with fully adhered EPDM membrane flashing as indicated on Drawings.

### 3.5 CLEANING AND PROTECTION

- A. Clean off excess sealants.
- B. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- C. Replace roof specialties that have been damaged or that cannot be successfully restored by finish touchup or similar minor restoration procedures.

END OF SECTION 07 71 00



## **SECTION 07 72 00 - ROOF ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Roof hatches.
  - 2. Movable safety railing systems.
  - 3. Storm collars.
  - 4. Isolation barrier membrane.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Meet with Owner, Architect, roofing Installer, Installer, and installers whose work interfaces with or affect roof accessories.
  - 2. Review special roof details, roof drainage, and conditions of other construction that will affect roof accessories.

#### **1.4 COORDINATION**

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
- C. Coordinate construction operations on or adjacent to roof, included in different Sections, which depend on each other for proper installation, connection, and operation.

#### **1.5 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section concurrently.



## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
  - 1. Roof hatches.
  - 2. Movable safety railing systems.
  - 3. Storm collars.
  - 4. Isolation barrier membrane.
- B. Shop Drawings: For roof accessories.
  - 1. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions.

## 1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

# PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

## 2.2 ROOF HATCHES

- A. Roof Hatches: Thermally enhanced metal roof-hatch units with double-wall translucent polycarbonate dome cover lid and insulated single-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, and integrally formed deck-mounting flange at perimeter bottom.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Bilco Company (The); Type GS-50T or comparable product by the following:
    - a. Babcock-Davis.
    - b. Nystrom.
- B. Type and Size: Single-leaf lid, 30 by 36 inches (verify existing opening size in field).
- C. Loads: Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.
- D. Material: Aluminum sheet, 0.090 inch thick.
  - 1. Finish: Mill.



- E. Construction:
1. Insulation: 2-inch-thick polyisocyanurate board at curb.
  2. Hatch Lid: Double UV-resistant, translucent, coated polycarbonite dome cover, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  3. Fabricate curbs to minimum height of 12 inches unless otherwise indicated.
- F. Hardware: Stainless-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.
- G. Warranty: provide manufacturer's standard 5-year warranty.
- H. Roof-Hatch Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with OSHA requirements and authorities having jurisdiction.
1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. Bilco Company (The); BIL-Guard 2.0, RL2-STB.
    - b. Babcock-Davis; SRBAY36X30FG.
    - c. Nystrom; SRBAY36X30FG.
  2. Height: 42 inches above finished roof deck.
  3. Dimensions: Match hatch size.
  4. Posts and Rails: Aluminum pipe, Schedule 40, 1-1/4 inches in diameter.
  5. Maximum Opening Size: System constructed to prevent passage of a sphere 21 inches in diameter.
  6. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
  7. Post and Rail Tops and Ends: Weather resistant, closed or plugged with prefabricated end fittings.
  8. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members.
  9. Fabricate joints exposed to weather to be watertight.
  10. Fasteners: Manufacturer's standard.
  11. Finish: Powder-coat finish.
    - a. Color: Safety yellow.



## 2.3 MOVABLE SAFETY RAILING SYSTEMS

- A. Movable Safety Railing Systems: Manufacturer's standard system including rails, clamps, fasteners, and accessories required for a complete installation; freestanding, non-penetrating, and complying with OSHA requirements and authorities having jurisdiction.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Safety Rail Company; SRC 360 Mobile Safety Rail System, or a comparable product.
  2. Height: 42 inches above finished roof, mid-rail at 21" above finished roof.
  3. Length: 5'-0" long minimum rail sections with locking pins securing rail section to base while allowing the sections to rotate. Custom longer lengths may be required between fixed points – verify in field.
  4. Bases: Cast iron with EPDM pad, with base mover/dolly.
  5. Posts and Rails: Steel tube, not less than 0.064-inch-thick (16 gage), 1-5/8 inches in diameter.
  6. Spanner Brackets: Horizontal members with brackets and hardware as required for attachment to rigid safety railings at roof hatch and walls.
  7. Maximum Opening Size: System constructed to prevent passage of a sphere 21 inches in diameter.
  8. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members.
  9. Fabricate joints exposed to weather to be watertight.
  10. Fasteners: Manufacturer's standard.
  11. Finish: Hot dip galvanized finish.

## 2.4 STORM COLLARS

- A. Storm Collars: Not less than 0.0188-inch-thick (26 gage), stainless-steel sheet umbrella with stainless-steel band clamp, installed with heat-resistant sealant.
1. Basis-of-Design Product: Subject to compliance with requirements, provide SBC Industries; Clamp Umbrella (Storm Collar) – Model UMB, or a comparable product.

## 2.5 METAL MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.
- B. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
1. Mill Finish: As manufactured.



- C. Aluminum Extrusions and Tubes: ASTM B221, manufacturer's standard alloy and temper for type of use, finished as indicated; otherwise mill finished.
  - 1. Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
- D. Stainless Steel Sheet and Shapes: ASTM A240/A240M or ASTM A666, Type 304.

## 2.6 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Glass-Fiber Board Insulation: ASTM C726, nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F, thickness as indicated.
- C. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.
- D. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, containing no arsenic or chromium, and complying with AWPA C2; not less than 1-1/2 inches thick.
- E. Isolation Barrier Membrane: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a polypropylene film to produce an overall thickness of not less than 0.014 inch.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide GCP Applied Technologies, Inc.; Vycor PRO, or comparable product.
- F. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
  - 1. Fasteners for Zinc-Coated Steel: Series 300 stainless steel.
  - 2. Fasteners for Aluminum Sheet: Series 300 stainless steel.
- G. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.
- H. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.



- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Install roof accessories according to manufacturer's written instructions.
  - 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
  - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
  - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
  - 1. Install isolation barrier membrane between metal and wood blocking, wrinkle free. Apply primer if required by membrane manufacturer. Use primer rather than nails for installing membrane at low temperatures. Overlap edges not less than 3-1/2 inches. Roll laps with roller. Cover membrane within 14 days.
- C. Roof-Hatch Installation:
  - 1. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
  - 2. Attach safety railing system to roof-hatch curb per manufacturer's requirements to meet OSHA requirements.
- D. Movable Safety Railing Installation: Assemble in place to verify that components are complete. Instruct Owner's designated personnel in properly handling, adjusting, and maintaining units.



1. Install safety railing system at locations shown on drawings. Install required components on adhered walk pads at EPDM and loose over roof at SPF and mechanically attach to roof hatch safety railings and walls per manufacturer's requirements to meet OSHA requirements.
- E. Storm Collar Installation: Install storm collars according to manufacturer's written installation instructions.
- F. Seal joints with elastomeric sealant as required by roof accessory manufacturer.

### 3.3 CORRECTION AND CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.
- B. Clean exposed surfaces according to manufacturer's written instructions.
- C. Clean off excess sealants.
- D. Replace roof accessories that have been damaged or that cannot be successfully restored by finish touchup or similar minor correction procedures.

END OF SECTION 07 72 00



## **SECTION 07 73 00 – ROOF DRAINS AND ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Roof drains, drain pipe, fittings, and insulation.
  - 2. Vent pipe extensions.
  - 3. Galvanized cast iron roof drain domes.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Roof drain pipe and fittings.
  - 2. Cast-iron, large-sump, general-purpose roof drains.
  - 3. Roof drain insulation.
  - 4. PVC jacket.
  - 5. Roof drain pipe insulation.
  - 6. Prefabricated vent pipe extensions.
  - 7. Galvanized cast iron roof drain domes.

#### **1.5 QUALITY ASSURANCE**

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

### **PART 2 - PRODUCTS**

#### **2.1 METAL ROOF DRAINS**

- A. Cast-Iron, Large-Sump, General-Purpose Roof Drains:



1. Basis-of-Design Product: Subject to compliance with requirements, provide Smith, Jay R. Mfg. Co.; No. 1015Y-R-C-U-G Large General Purpose Roof Drain or comparable product by one of the following:
  - a. Josam Company.
  - b. Zurn Plumbing Products Group; Specification Drainage Operation.
2. Standard: ASME A112.6.4, for general-purpose roof drains.
3. Body Material: Cast iron.
4. Dimension of Body: Nominal 16-inch diameter.
5. Combination Flashing Ring and Gravel Stop: Required.
6. Outlet: Bottom.
7. Adjustable Extension Sleeves: Required.
8. Underdeck Clamp: Required.
9. Sump Receiver: Required.
10. Dome Material: Galvanized Cast Iron.
11. Vandal-Proof Dome: Required.

B. Roof Drain Insulation:

1. Type I, 850 Deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, without factory-applied jacket.
  - a. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; Micro-Lok, or a comparable product.
  - b. Thickness: 2 inches.
2. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C, factory-fabricated fitting covers with glass fiber inserts. Tape as recommended by manufacturer.
  - a. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; Zeston 2000, or a comparable product.
  - b. Adhesive: As recommended by jacket material manufacturer.
  - c. Color: White.
  - d. Shapes: Roof drain sumps.

C. Roof Drain Pipe and Fittings:

1. General: Match size of existing connecting piping. Provide cleanouts as required by code, and all hangers and supports required to adequately secure piping to building structure, without penetrating insulation vapor barriers.



2. Below Grade Piping:
  - a. Hub-and-Spigot, Cast-Iron Soil Pipe and Fittings:
    - 1) Pipe and Fittings: ASTM A 74, Service classes.
    - 2) Gaskets: ASTM C 564, rubber.
3. Above Grade Piping: Provide **one of** the following:
  - a. Hubless, Cast-Iron Soil Pipe and Fittings:
    - 1) Pipe and Fittings: ASTM A 888 or CISPI 301.
    - 2) CISPI, Hubless-Piping Couplings:
      - a) Standards: ASTM C 1277 and CISPI 310.
      - b) Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.
  - b. Galvanized-Steel Pipe and Fittings:
    - 1) Galvanized-Steel Pipe: ASTM A 53/A 53M, Type E, Standard Weight. Include square-cut-grooved or threaded ends matching joining method.
    - 2) Galvanized-Cast-Iron Drainage Fittings: ASME B16.12 threaded.
  - c. Copper Tube and Fittings:
    - 1) Copper DWV Tube: ASTM B 306, drainage tube, drawn temper.
    - 2) Copper Drainage Fittings: ASME B16.23, cast-copper fittings or ASME B16.29, wrought-copper, solder-joint fittings.

D. Roof Drain Pipe Insulation:

1. Mineral-Fiber, Preformed Pipe Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ-SSL.
  - a. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; Micro-Lok, or a comparable product.
2. PVC Jackets: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C, factory-fabricated fitting covers with glass fiber inserts. Tape as recommended by manufacturer.
  - a. Basis-of-Design Product: Subject to compliance with requirements, provide Johns Manville; Zeston 2000, or a comparable product.
  - b. Adhesive: As recommended by jacket material manufacturer.
  - c. Color: White.
  - d. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps and mechanical joints.



## 2.2 VENT PIPE EXTENSIONS

- A. Vent Pipe Extensions: Prefabricated plumbing vent pipe extensions. PVC pipe with integral six-inch long joint splice sleeve insert at each end. Verify existing pipe size in field.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide OMG Roofing Products; "Tubos Vent Pipe Extensions", or a comparable product.

## 2.3 GALVANIZED CAST IRON ROOF DRAIN DOMES

- A. Galvanized cast iron roof drain dome for use at existing roof drains with plastic or missing domes. Sized to fit existing drain. No tools required for installation. Verify existing pipe size in field.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Smith, Jay R. Mfg. Co.; No. "CID" Large General Purpose Galvanized Cast Iron Roof Drain Dome or comparable product by one of the following:
    - a. Josam Company.
    - b. Zurn Plumbing Products Group; Specification Drainage Operation.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

## 3.2 INSTALLATION

- A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions. Roofing materials are specified in Division 07 Sections.
  - 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
  - 2. Position roof drains for easy access and maintenance.
  - 3. Insulate roof drain body, roof drain and fittings.
- B. Install prefabricated vent pipe extensions according to manufacturer's written installation instructions or field fabricate the vent extension to provide the required vent height.
- C. At existing roof drain locations with plastic or missing domes: Remove and discard plastic domes. Install galvanized cast iron domes loose on roof at drain to fit into drain recess where possible. Thoroughly clean existing roof drain and complete spray polyurethane roof coating prior to drain dome installation



D. Insulation:

1. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
2. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.
3. Install insulation tight and sealed to existing insulation – verify in field.
4. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
5. Install insulation with longitudinal seams at top and bottom of horizontal runs.
6. Install multiple layers of insulation with longitudinal and end seams staggered.
7. Keep insulation materials dry during application and finishing.
8. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
9. Install insulation with least number of joints practical.
10. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
11. Install insulation continuously through hangers and around anchor attachments.
12. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
13. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
14. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
15. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.
16. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
17. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
18. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere and seal patches similar to butt joints.



### 3.3 CONNECTIONS

- A. Comply with requirements for piping connections per Plumbing Code of New York State. Drawings indicate general arrangement of piping, fittings, and specialties.

### 3.4 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

END OF SECTION 07 73 00



## **SECTION 07 84 13 - PENETRATION FIRESTOPPING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Penetrations in fire-resistance-rated walls.
  - 2. Penetrations in smoke barriers.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Penetrations in fire-resistance-rated walls.
  - 2. Penetrations in smoke barriers.
- B. Sustainable Design Submittals:
  - 1. Product Data: For sealants, indicating VOC content.
- C. Product Schedule: For each penetration firestopping system. Include type of penetration, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

#### **1.6 INFORMATIONAL SUBMITTALS**

- A. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines.



## 1.7 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

## 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Approvals according to FM Approvals 4991, "Approval Standard for Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

## 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

## 1.10 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

# PART 2 - PRODUCTS

## 2.1 SOURCE LIMITATIONS

- A. Obtain joint firestop systems for each type of joint opening indicated from single manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics:
  - 1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
    - a. Penetration firestop systems installed with products bearing the classification marking of a qualified product certification agency in accordance with listed system designs published by a qualified testing agency.
      - 1) UL in its online directory "Product iQ."



## 2.3 PENETRATION FIRESTOPPING SYSTEMS

- A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems are to be compatible with one another, with the substrates forming openings, and with penetrating items if any.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. 3M Fire Protection Products.
    - b. Hilti, Inc.
    - c. RectorSeal, a CSW Industrials company.
- B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479.
  - 1. F-Rating: Not less than the fire-resistance rating of the wall penetrated.
  - 2. Membrane Penetrations: Install recessed fixtures such that the required fire resistance will not be reduced.
- C. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479.
  - 1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.
- D. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E84.
  - 1. Verify sealant has a VOC content of 250 g/L or less.
- E. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.
  - 1. Permanent forming/damming/backing materials.
  - 2. Substrate primers.
  - 3. Collars.
  - 4. Steel sleeves.

## 2.4 FILL MATERIALS

- A. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- B. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.



- C. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.
- D. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- E. Intumescent Wrap Strips: Single-component intumescent elastomeric strips for use around combustible penetrants.
- F. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- G. Pillows/Bags: Compressible, removable, and reusable intumescent pillows encased in fire-retardant polyester or glass-fiber cloth. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- H. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- I. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.
- J. Fire-Rated Cable Sleeve Kits: Complete kits designed for new or existing cable penetrations through walls to accept standard accessories.
- K. Thermal Wrap: Flexible protective wrap tested and listed for up to 2-hour fire ratings in accordance with ASTM E814/UL 1479 for membrane penetrations or ASTM E1725/UL 1724 for thermal barrier and circuit integrity protection.
- L. Fire-Rated Cable Pathways: Single or gangable device modules composed of a steel raceway with integral intumescent material and requiring no additional action in the form of plugs, twisting closure, putty, pillows, sealant, or otherwise to achieve fire and air-leakage ratings.
- M. Retrofit Device for Cable Bundles: Factory-made, intumescent, collar-like device for firestopping existing over-filled cable sleeves and capable of being installed around projecting sleeves and cable bundles.
- N. Wall-Opening Protective Materials: Intumescent, non-curing putty pads or self-adhesive inserts for protection of electrical switch and receptacle boxes.
- O. Fire-Rated HVAC Retaining Angles: Steel angle system with integral intumescent firestop gasket for use around rectangular steel HVAC ducts without fire dampers.
- P. Firestop Plugs: Flexible, re-enterable, intumescent, foam-rubber plug for use in blank round openings and cable sleeves.
- Q. Fire-Rated Cable Grommet: Molded two-piece grommet made of plenum-grade polymer and foam inner core for sealing small cable penetrations in gypsum walls up to 1/2 inch diameter.
- R. Closet Flange Gasket: Molded, single-component, flexible, intumescent gasket for use beneath a water closet (toilet) flange in floor applications.



- S. Endothermic Wrap: Flexible, insulating, fire-resistant, endothermic wrap for protecting membrane penetrations of utility boxes, critical electrical circuits, communications lines, and fuel lines.

## 2.5 MIXING

- A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

### 3.3 INSTALLATION OF PENETRATION FIRESTOPPING SYSTEMS

- A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.



- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.
  - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.
- C. Install fill materials by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
  - 1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.
- B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
  - 1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
  - 2. Contractor's name, address, and phone number.
  - 3. Designation of applicable testing and inspecting agency.
  - 4. Date of installation.
  - 5. Manufacturer's name.
  - 6. Installer's name.

### 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Special Inspections are required for the work of this Section. Refer to Division 01 Section "Quality Requirements" and its attachments.
  - 1. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E2174.



- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

### 3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

### 3.7 PENETRATION FIRESTOPPING SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to UL system numbers in its online directory "Product iQ" under product Category XHEZ.
- B. For each location where a penetration occurs, provide a firestopping system selected from the system below that complies with this Section and is suitable for the penetration conditions indicated for the Project.



WALL Firestopping Systems Listed Using the Alpha-Alpha-Numeric Identification System Published in UL's <i>Fire Resistance Directory</i> , Vols. 2a - 2b				
TYPE OF PENETRANT	Wall PENETRATION SYSTEMS (First Alpha Component = C or W)			
	Concrete or Masonry Walls with a Mini- mum Thickness Less Than or Equal to 8 Inches (203 MM)	Concrete or Masonry Walls with a Mini- mum Thickness OF MORE Than 8 Inch- es (203 MM)	Framed Walls	Composite panel walls
NO PENETRATING ITEMS	C-AJ-0001-0999, C-BJ-0001-0999, or W-J-0001-0999		W-L-000-1-0999	
METALLIC PIPE, CONDUIT, OR TUBING	C-AJ-1001-1999, C-BJ-1001-1999, or W-J-1001-1999	C-BK-1001-1999 or W-K-1001-1999	W-L-1001-1999	W-N-1001-1999
NONMETALLIC PIPE, CONDUIT, OR TUBING	C-AJ-2001-2999, C-BJ-2001-2999, or W-J-2001-2999	C-BK-2001-2999 or W-K-2001-2999	W-L-2001-2999	W-N-2001-2999
ELECTRICAL CABLES	C-AJ-3001-3999, C-BJ-3001-3999, or W-J-3001-3999	C-BK-3001-3999 or WK-3001-3999	W-L-3001-3999	
CABLE TRAYS WITH ELECTRICAL CABLES	C-AJ-4001-4999, C-BJ-4001-4999, or W-J-4001-4999	W-K-4001-4999	W-L-4001-4999	



WALL Firestopping Systems Listed Using the Alpha-Alpha-Numeric Identification System Published in UL's <i>Fire Resistance Directory</i> , Vols. 2a - 2b				
TYPE OF PENETRANT	Wall PENETRATION SYSTEMS (First Alpha Component = C or W)			
	Concrete or Masonry Walls with a Mini- mum Thickness Less Than or Equal to 8 Inches (203 MM)	Concrete or Masonry Walls with a Mini- mum Thickness OF MORE Than 8 Inch- es (203 MM)	Framed Walls	Composite panel walls
INSULATED PIPES	C-AJ-5001-5999, C-BJ-5001-5999, or W-J-5001-5999	C-BK-5001-5999	W-L-5001-5999	W-N-5001-5999
MISCELLANEOUS ELECTRICAL PENETRANTS	C-AJ-6001-6999, C-BJ-6001-6999, or W-BJ-6001-6999		W-L-6001-6999	
MISCELLANEOUS MECHANICAL PENETRANTS	C-AJ-7001-7999, C-BJ-7001-7999, or W-J-7001-7999		W-L-7001-7999	W-N-7001-7999
GROUPINGS OF PENETRATIONS	C-AJ-8001-8999, C-BJ-8001-8999, or W-J-8001-8999		W-L-8001-8999	

END OF SECTION 07 84 13



## **SECTION 07 84 43 - JOINT FIRESTOPPING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Joints in or between fire-resistance-rated constructions.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Joints in or between fire-resistance-rated constructions.
- B. Sustainable Design Submittals:
  - 1. Product Data: For sealants, indicating VOC content.
- C. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.

#### **1.6 INFORMATIONAL SUBMITTALS**

- A. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines.



## 1.7 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

## 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Approvals according to FM Approvals 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."

## 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

## 1.10 COORDINATION

- A. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.
- B. Coordinate sizing of joints to accommodate joint firestopping systems.

# PART 2 - PRODUCTS

## 2.1 SOURCE LIMITATIONS

- A. Obtain joint firestop systems for each type of joint opening indicated from single manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics:
  - 1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
  - 2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:
    - a. Joint firestop systems installed with products bearing the classification marking of a qualified product certification agency in accordance with Listed System Designs published by a qualified testing agency.
      - 1) UL in its online directory "Product iQ."



- B. Rain/Water Resistance: For perimeter fire-barrier system applications, where inclement weather or greater-than-transient water exposure is expected, use products that dry rapidly and cure in the presence of atmospheric moisture sufficient to pass ASTM D6904 early rain-resistance test (24-hour exposure).

## 2.3 JOINT FIRESTOPPING SYSTEMS

- A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems must accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
  - 1. Joint firestopping systems that are compatible with one another, with the substrates forming openings, and with penetrating items, if any.
  - 2. Provide products that, upon curing, do not re-emulsify, dissolve, leach, breakdown, or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture.
  - 3. Provide firestop products that do not contain ethylene glycol.
  - 4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. 3M Fire Protection Products.
    - b. Hilti, Inc.
    - c. RectorSeal, a CSW Industrials company.
- B. Intumescent Gypsum Wall Framing Gaskets (Applied to Steel Tracks, Runners and Studs prior to Framing Installation): Provide products with fire, smoke, and acoustical ratings that allow movement up to 100 percent compression and/or extension in accordance with UL 2079 or ASTM E1966; have an L Rating less than 1 cfm/ft. in accordance with UL 2079; and a minimum Sound Transmission Class (STC) rating of 56 in accordance with ASTM E90 or ASTM C919.
- C. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E1966 or UL 2079.
  - 1. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.
- D. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E84.
  - 1. Verify sealant has a VOC content of 250 g/L or less.



## 2.4 ACCESSORIES

- A. Provide components of joint firestopping systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Surface Cleaning: Before installing joint firestopping systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
  - 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.
  - 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Prime substrates where recommended in writing by joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Apply a suitable bond-breaker to prevent three-sided adhesion in applications where this condition occurs, such as the intersection of a gypsum wall to floor or roof assembly where the joint is backed by a steel ceiling runner or track.

### 3.3 INSTALLATION

- A. General: Install joint firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.



1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.
- C. Install elastomeric fill materials for joint firestopping systems by proven techniques to produce the following results:
1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
  2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
  3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 ft. from end of wall and at intervals not exceeding 30 ft.
- B. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
  2. Contractor's name, address, and phone number.
  3. Designation of applicable testing agency.
  4. Date of installation.
  5. Manufacturer's name.
  6. Installer's name.

### 3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Special Inspections are required for the work of this Section. Refer to Division 01 Section "Quality Requirements" and its attachments.
1. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E2393.
- B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.
- C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.



### 3.6 CLEANING AND PROTECTION

- A. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated joint firestopping systems immediately and install new materials to produce joint firestopping systems complying with specified requirements.

### 3.7 JOINT FIRESTOPPING SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to system numbers in UL's online directory "Product iQ" under product Category XHBN.
- B. Wall-to-Wall, Joint Firestopping Systems:
  - 1. UL-Classified Systems:
    - a. WW-D- 0000-0999.
  - 2. Assembly Rating: 1 hour.
  - 3. Nominal Joint Width: As indicated.
- C. Floor-to-Wall, Joint Firestopping Systems:
  - 1. UL-Classified Systems:
    - a. FW-D- 0000-0999.
  - 2. Assembly Rating: 1 hour.
  - 3. Nominal Joint Width: As indicated.
- D. Head-of-Wall, Fire-Resistive Joint Firestopping Systems:
  - 1. UL-Classified Systems:
    - a. Basis-of-Design: HW-D-0045
  - 2. Assembly Rating: 1 hour.
  - 3. Nominal Joint Width: As indicated.

END OF SECTION 07 84 43



## **SECTION 07 92 00 - JOINT SEALANTS**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Silicone joint sealants.
  - 2. Latex joint sealants.
  - 3. Acoustical joint sealants.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals (except Samples for Verification) required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
  - 1. Cylindrical sealant backings.
  - 2. Bond-breaker tape.
  - 3. Primers.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Silicone joint sealants.
  - 2. Latex joint sealants.
  - 3. Acoustical joint sealants.
- C. Sustainable Design Submittals:
  - 1. Product Data: For sealants, indicating VOC content.
- D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each product exposed to view.



- E. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- F. Joint-Sealant Schedule: Include the following information:
  - 1. Joint-sealant application, joint location, and designation.
  - 2. Joint-sealant manufacturer and product name.
  - 3. Joint-sealant formulation.

## 1.5 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## PART 2 - PRODUCTS

### 2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content: Sealants and sealant primers shall comply with the following:
  - 1. Architectural sealants shall have a VOC content of 250 g/L or less.
  - 2. Sealants and sealant primers for nonporous surfaces shall have a VOC content of 250 g/L or less.
  - 3. Sealants and sealant primers for porous substrates shall have a VOC content of 775 g/L or less.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range. Multiple colors may be selected.

### 2.2 SILICONE JOINT SEALANTS

- A. Silicone Joint Sealants: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Use NT.



1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Dow Chemical Company (The); DOWSIL790 Silicone Building Sealant.
  - b. GE/Momentive Performance Materials Inc.; SCS2700 SilPruf LM.
  - c. Pecora Corporation; 890NST.
  - d. Tremco Incorporated; Spectrem 1.
2. Joint-Sealant Application: Joints in vertical surfaces.
  - a. Exterior Joint Locations:
    - 1) Other joints as indicated.
  - b. Interior Joint Locations:
    - 1) Perimeter joints of exterior openings.
    - 2) Other joints as indicated.

## 2.3 URETHANE JOINT SEALANTS

- A. Urethane Joint Sealants, Traffic-Use: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic--use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 25, Use T.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Master Builders Solutions; MasterSeal SL 1.
    - b. Polymeric Systems, Inc.; Flexiprene PSI-952.
    - c. Sherwin-Williams Company (The); Loxon SL1.
  2. Joint-Sealant Application: Joints up to 1 inch wide in horizontal traffic surfaces.
    - a. Exterior Joint Locations:
      - 1) Isolation and contraction joints in cast-in-place concrete slabs.
      - 2) Joints between different materials listed above.
      - 3) Other joints as indicated.
    - b. Interior Joint Locations:
      - 1) Other joints as indicated.

## 2.4 LATEX JOINT SEALANTS

- A. Acrylic Latex Joint Sealants: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP.
  1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:



- a. Pecora Corporation; AC-20 +Silicone.
  - b. Tremco Incorporated; Tremflex 834.
- 2. Joint-Sealant Application: Interior joints in vertical surfaces not subject to significant movement.
  - a. Joint Locations:
    - 1) Vertical joints on exposed surfaces of interior gypsum board.
    - 2) Perimeter joints between interior wall surfaces and frames of openings.
    - 3) Other joints as indicated.

## 2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealants for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex acoustical sealant complying with ASTM C834.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Grabber Construction Products; Grabber Acoustical Sound Sealant.
    - b. Pecora Corporation; AC-20 FTR.
    - c. USG Corporation; Sheetrock Brand Acoustical Sealant.

## 2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material) or either of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.



- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.



### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C1193 unless otherwise indicated.

### 3.4 INSTALLATION OF ACOUSTICAL JOINT SEALANTS

- A. Comply with acoustical joint-sealant manufacturer's written installation instructions unless more stringent requirements apply.
- B. Stud Partition Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical joint sealant. Install acoustical joint sealants at both faces of partitions, at perimeters, and through penetrations. Comply with ASTM C919, ASTM C1193, and manufacturer's written recommendations for closing off sound-flanking paths around or through assemblies, including sealing partitions to underside of floor slabs above acoustical ceilings.



- C. Acoustical Ceiling Areas: Apply acoustical joint sealant at perimeter edge moldings of acoustical ceiling areas in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

### 3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and correct damaged or deteriorated joint sealants immediately so installations with corrected areas are indistinguishable from original work.

END OF SECTION 07 92 00



**SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes:
  - 1. Interior standard steel frames.

**1.3 DEFINITIONS**

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to ANSI/SDI A250.8. (Nominal gage equivalents are listed in parentheses.)

**1.4 COORDINATION**

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- B. Coordinate requirements for installation of door hardware, electrified door hardware, and access control and security systems.

**1.5 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Sections "Door Hardware" and "Glazing" concurrently.

**1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance ratings, and finishes.
  - 1. Interior standard steel frames.
  - 2. Borrowed lights.
  - 3. Frame anchors.



B. Shop Drawings: Include the following:

1. Elevations of each frame type.
2. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
3. Locations of reinforcement and preparations for hardware.
4. Details of each different wall opening condition.
5. Details of anchorages, joints, field splices, and connections.
6. Details of accessories.
7. Details of moldings, removable stops, and glazing. Indicate which side of each door or frame has a removable stop.

C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

1.7 CLOSEOUT SUBMITTALS

- A. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames.
- C. Store hollow-metal doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch-high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Ceco Door; ASSA ABLOY.
  2. Curries Company; ASSA ABLOY.
  3. Pioneer Industries.
  4. Steelcraft; an Allegion brand.



## 2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated on Drawings, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- B. Fire-Rated, Borrowed-Lite Assemblies: Assemblies complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

## 2.3 INTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B. At all interior locations.
  - 1. Frames:
    - a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch (16-gage).
    - b. Sidelite Frames: Fabricated from same thickness material as adjacent door frame.
    - c. Construction: Full profile welded in factory.
  - 2. Exposed Finish: Prime.

## 2.4 BORROWED LITES

- A. Fabricate of uncoated steel sheet, minimum thickness of 0.053 inch (16-gage).
- B. Construction: Full profile welded in factory.
- C. Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as metal as frames.
- D. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.



## 2.5 FRAME ANCHORS

### A. Jamb Anchors:

1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
3. Postinstalled Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

### B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

## 2.6 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.
- E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.
- F. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
- G. Glazing: Comply with requirements in Division 08 Section "Glazing" and with hollow-metal manufacturer's requirements.
- H. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.7 FABRICATION

- A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.



1. Sidelite Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by welding.
  2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  3. Grout Guards: Formed from same material as frames, not less than 0.016 inch thick (26-gage). Weld guards to frame at back of hardware mortises in frames to be grouted.
  4. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to ANSI/SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce frames to receive nontemplated, mortised, and surface-mounted door hardware.
  2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.
- C. Glazed Lites: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide stops and moldings flush with face of door, and with square stops unless otherwise indicated.
  2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
  3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames. Provide loose stops and moldings on inside of hollow-metal doors and frames.
  4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
  5. Provide stops for installation with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

## 2.8 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Remove shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make restored area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap frames to receive nontemplated, mortised, and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. Install hollow-metal frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
- B. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.
  - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
    - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
    - b. Install frames with removable stops located on secure side of opening.
    - c. Field apply corrosion-resistant coating to backs of frames that will be filled with grout containing antifreezing agents.
    - d. Install door silencers in frames before grouting.
  - 2. Fire-Rated Openings: Install frames according to NFPA 80.
  - 3. Floor Anchors: Secure with postinstalled expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
  - 4. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.



5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
7. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
  - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
  - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
  1. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.
  2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
  3. Smoke-Control Doors: Install doors according to NFPA 105.
- D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow-metal manufacturer's written instructions.

### 3.4 FIELD QUALITY CONTROL

- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
- B. Inspections:
  1. Fire-Rated Door Inspections: Inspect each fire-rated door according to NFPA 80, Section 5.2.
- C. Correct or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect corrected or replaced installations to determine if replaced or corrected door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80.

### 3.5 RESTORATION

- A. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.



- B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- C. Metallic-Coated Surface Touchup: Clean abraded areas and restore with galvanizing touch-up paint according to manufacturer's written instructions.

END OF SECTION 08 11 13



## **SECTION 08 14 16 - FLUSH WOOD DOORS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Five-ply flush wood veneer-faced doors for transparent finish.
  - 2. Factory finishing flush wood doors.
  - 3. Factory fitting flush wood doors to frames and factory machining for hardware.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals required by this Section and by Division 08 Sections "Door Hardware" and "Glazing" concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product, including the following:
  - 1. Door core materials and construction.
  - 2. Door edge construction.
  - 3. Door face type and characteristics.
  - 4. Door trim for openings.
  - 5. Factory-finishing specifications.
- B. Sustainable Design Submittals:
  - 1. Product Data: For adhesives, indicating product contains no urea formaldehyde.
  - 2. Product Data: For composite wood products, indicating product contains no urea formaldehyde.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
  - 1. Door schedule indicating door location, type, size, fire protection rating, and swing.
  - 2. Door elevations, dimension and locations of hardware, light and louver cutouts, and glazing thicknesses.
  - 3. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
  - 4. Dimensions and locations of blocking for hardware attachment.



5. Dimensions and locations of mortises and holes for hardware.
6. Clearances and undercuts.
7. Requirements for veneer matching.
8. Doors to be factory finished and application requirements.

D. Samples:

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.

E. Sample Warranty: For special warranty.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

## 1.6 CLOSEOUT SUBMITTALS

- A. Special warranties.
- B. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

## 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and temperature and relative humidity are maintained at levels designed for building occupants for the remainder of construction period.

## 1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Delamination of veneer.
    - b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
    - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.



2. Warranty shall also include installation and finishing that may be required due to correction or replacement of defective doors.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
  1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

### 2.2 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with ANSI/WDMA I.S. 1A.
  1. The Contract Documents contain requirements that may be more stringent than the referenced quality standard. Comply with the Contract Documents in addition to those of the referenced quality standard.
- B. Adhesives: Do not use adhesives that contain urea formaldehyde.
- C. Composite Wood Products: Products shall be made without urea formaldehyde.

### 2.3 SOLID-CORE FIVE-PLY FLUSH WOOD VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Doors:
  1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to:
    - a. Marshfield-Algoma by Masonite Architectural.
    - b. Oshkosh Door Company.
    - c. VT Industries, Inc.
  2. Performance Grade: ANSI/WDMA I.S. 1A Extra Heavy Duty.



3. ANSI/WDMA I.S. 1A Grade: Custom.
4. Faces: Single-ply, wood veneer not less than 1/50 inch thick.
  - a. Species: Select white maple
  - b. Cut: Plain sliced (flat sliced).
  - c. Match between Veneer Leaves: Book match.
  - d. Assembly of Veneer Leaves on Door Faces: Running match.
  - e. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
5. Exposed Vertical and Top Edges: Same species as faces - Architectural Woodwork Standards edge Type A.
  - a. Fire-Rated Single Doors: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed vertical edges.
  - b. Fire-Rated Pairs of Doors: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
  - c. Mineral-Core Doors: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
    - 1) Screw-Holding Capability: 550 lbf in accordance with WDMA T.M. 10.
6. Core for Non-Fire-Rated Doors:
  - a. WDMA I.S. 10 structural composite lumber.
    - 1) Screw Withdrawal, Door Face: 550 lbf.
    - 2) Screw Withdrawal, Vertical Door Edge: 550 lbf.
7. Core for Fire-Rated Doors: As required to achieve fire-protection rating indicated on Drawings.
  - a. Blocking for Mineral-Core Doors: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated on Drawings as needed to eliminate through-bolting hardware.
8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.



## 2.4 LIGHT FRAMES

- A. Metal Frames for Light Openings in Fire-Rated and Non-Fire-Rated Doors: Manufacturer's standard frame formed of 0.036-inch-thick (20 gage), cold-rolled steel sheet; factory primed for paint finish; and for fire-rated doors, approved for use in doors of fire-protection rating indicated on Drawings.

## 2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.
  - 1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
  - 2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
  - 1. Locate hardware to comply with DHI-WDHS-3.
  - 2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
  - 3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
  - 4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.
  - 5. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Factory cut and trim openings through doors.
  - 1. Light Openings: Trim openings with moldings of material and profile indicated.
  - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing."

## 2.6 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.
  - 1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 2. Finish faces, all four edges, edges of cutouts, and mortises.
  - 3. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.
- C. Transparent Finish:
  - 1. ANSI/WDMA I.S. 1A Grade: Custom.
  - 2. Finish: ANSI/WDMA I.S. 1A TR-8 UV Cured Acrylated Polyester/Urethane
  - 3. Staining: As selected by Architect from manufacturer's full range.



4. Effect: Filled finish.
5. Sheen: Satin.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
  1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
  2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
  1. Install fire-rated doors in accordance with NFPA 80.
  2. Install smoke- and draft-control doors in accordance with NFPA 105.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

### 3.3 FIELD QUALITY CONTROL

- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
- B. Inspections:
  1. Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80, Section 5.2.
- C. Correct or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect corrected or replaced installations to determine if replaced or corrected door assembly installations comply with specified requirements.



- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80.

### 3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be corrected or refinished if Work complies with requirements and shows no evidence of correction or refinishing.

END OF SECTION 08 14 16



## **SECTION 08 31 13 - ACCESS DOORS AND FRAMES**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes access doors and frames for walls and ceilings.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include construction details, fire ratings, material descriptions, dimensions of individual components and profiles, and finishes.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below; otherwise submit full Product Data for the following:
  - 1. Flush access doors with exposed flanges.
  - 2. Fire-rated, flush access doors with exposed flanges.
- C. Product Schedule: For access doors and frames.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality control reports.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Record Documents: For fire-rated doors, list of applicable room name and number in which access door is located.



## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Access Doors and Frames: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection and temperature-rise limit ratings indicated, according to NFPA 252 or UL 10B.

### 2.2 ACCESS DOORS AND FRAMES

#### A. Flush Access Doors with Exposed Flanges :

1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
  - a. Karp Associates, Inc.; Model DSC-214M Universal Flush Access Door.
  - b. Milcor Company; Series M – Architectural Grade Flush Steel Access Door.
  - c. Nystrom, Inc.; NT Architectural Access Door.
2. Description: Face of door flush with frame, with exposed flange and concealed hinge.
3. Locations: Walls, where indicated on Drawings and, if not indicated, as follows:
  - a. In painted CMU exposed to view.
  - b. In ceramic tile exposed to view.
  - c. Concealed locations not exposed to view (i.e., above lay-in ceilings and in mechanical and other utility rooms).
4. Door Size: As required.
5. Uncoated Steel Sheet for Door: Nominal 0.075 inch (14 gage), factory primed.
6. Frame Material: Same material and finish as door; nominal 0.060 inch (16 gage).
7. Latch and Lock: Cam latch, screwdriver operated with interior release.

### 2.3 FIRE-RATED ACCESS DOORS AND FRAMES

#### A. Fire-Rated, Flush Access Doors with Exposed Flanges :

1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
  - a. Karp Associates, Inc.; Model KRP-150FR Universal Fire Rated Access Door.
  - b. Milcor Company; Series UFR – Universal Fire-Rated Access Door.
  - c. Nystrom, Inc.; IT Insulated Fire-Rated Access Door.
2. Description: Door face flush with frame, with a core of mineral-fiber insulation enclosed in sheet metal; with exposed flange, self-closing door, and continuous piano hinge.



3. Locations: Walls, where indicated on Drawings and, if not indicated, as follows:
  - a. In fire-rated construction.
4. Door Size: As required..
5. Fire-Resistance Rating: Not less than 1-1/2 hours.
6. Temperature-Rise Rating: 250 deg F at the end of 30 minutes.
7. Uncoated Steel Sheet for Door: Nominal 0.036 inch (20 gage), factory primed.
8. Frame Material: Same material and finish as door; nominal 0.060 inch (16 gage).
9. Latch and Lock: Self-latching door hardware, operated by key with interior release.

## 2.4 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A879/A879M, with cold-rolled steel sheet substrate complying with ASTM A1008/A1008M, Commercial Steel (CS), exposed.
- C. Frame Anchors: Same material as door face.
- D. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

## 2.5 FABRICATION

- A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.
- B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.
- D. Latch and Lock Hardware:
  1. Quantity: Furnish number of latches and locks required to hold doors tightly closed.
  2. Keys: Furnish two keys per lock and key all locks alike.

## 2.6 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.



- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
  - 1. Factory Primed: Apply manufacturer's standard, baked-enamel or powder-coat primer immediately after surface preparation and pretreatment.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

#### 3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.

#### 3.3 FIELD QUALITY CONTROL

- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
- B. Inspections:
  - 1. Fire-Rated Door Inspections: Inspect each fire-rated access door in accordance with NFPA 80, section 5.2.
- C. Correct or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect corrected or replaced installations to determine if replaced or corrected door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated access door indicating compliance with each item listed in NFPA 80.



3.4 ADJUSTING

- A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 08 31 13



## **SECTION 08 33 13 - COILING COUNTER DOORS**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Fire-rated counter door assemblies.
- B. Products Installed but not Furnished under This Section:
  - 1. Steel support framing.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type and size of coiling counter door and accessory.
  - 1. Include construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
  - 3. Include description of automatic closing device and testing and resetting instructions.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Fire-rated counter door assemblies.
- C. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
  - 1. Include plans, elevations, sections, mounting details, and attachments to other work.
  - 2. Include details of equipment assemblies, and indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.



3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
  4. Show locations of controls, locking devices, detectors, and other accessories.
  5. Include diagrams for power, signal, and control wiring.
- D. Samples: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.
- E. Sample Warranty: For special warranty.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For coiling counter doors to include in maintenance manuals.
- B. Warranty: Executed special warranty.
- C. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for installation of units required for this Project.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace components of doors that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Failure of components or operators before reaching required number of operation cycles.
    - c. Faulty operation of hardware.
    - d. Deterioration of metals, metal finishes, and other materials.
  2. Warranty Period: 2 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain coiling counter doors from single source from single manufacturer.
1. Obtain operators and controls from coiling counter door manufacturer.



## 2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Door Assemblies: Complying with NFPA 80; listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252 or UL 10B.
  - 1. Smoke Control; provide doors that are listed and labeled with the letter "S" on the fire-rating label by a qualified testing agency for smoke- and draft-control based on testing according to UL 1784; with maximum air-leakage rate of 3.0 cfm/sq. ft. of door opening at 0.10 inch wg for both ambient and elevated temperature tests.
- B. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design," ICC A117.1, and building Code in effect for Project.
- C. Seismic Performance: Overhead coiling counter doors shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
  - 1. Component Importance Factor: 1.5.

## 2.3 FIRE-RATED COUNTER DOOR ASSEMBLY

- A. Fire-Rated Counter Door: Overhead fire-rated coiling door formed with curtain of interlocking metal slats.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
    - a. Clopay Building Products Co.; Model CERC11 Smoke Resistant Rolling Counter Fire Doors.
    - b. CornellCookson, LLC; Model ERC11 SmokeShield Rolling Counter Fire Shutters.
    - c. Wayne Dalton; FireStar Model 550 Fire-Rated Counter Shutters.
- B. Operation Cycles: Door components and operators capable of operating for not less than 20,000 operating cycles. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position.
- C. Fire Rating: 3/4 hour with smoke control.
- D. Door Curtain Material: Stainless steel.
- E. Door Curtain Slats: Flat profile slats of 1-1/2- to 2-inch center-to-center height.
  - 1. Thickness: Not less than 0.0312 inch (22 gage) stainless steel; and as required to meet performance requirements.
- F. Curtain Jamb Guides: Stainless steel with exposed finish matching curtain slats.



G. Hood: Stainless steel.

1. Thickness: Not less than 0.025 inch (24 gage) stainless steel.
2. Mounting: Face of wall.

H. Sill Configuration: Fire-rated, laminate counter.

1. High-Pressure Decorative Laminate: As selected by Architect from manufacturer's full range.

I. Locking Devices: Equip door with locking device assembly.

1. Locking Device Assembly: Cremone-type, both jamb sides locking bars, operable from inside with thumbturn .

J. Electric Door Operator:

1. Usage Classification: Light duty, up to 10 cycles per day.
2. Operator Location: Concealed tubular.
3. Motor Exposure: Interior.
4. Motor Electrical Characteristics:
  - a. Horsepower: 1/2 hp.
  - b. Voltage: 115-V ac, single phase, 60 Hz.
5. Emergency Manual Operation: Crank type.
6. Obstruction-Detection Device: Automatic electric sensor edge on bottom bar; self-monitoring type.
7. Control Station(s): Where indicated on Drawings.
8. Other Equipment: Audible and visual signals.

K. Curtain Accessories: Equip door with smoke seals and automatic closing device.

L. Door Finish:

1. Stainless Steel Finish: ASTM A480/A480M No. 4 (polished directional satin).

## 2.4 MATERIALS, GENERAL

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.



## 2.5 DOOR CURTAIN MATERIALS AND FABRICATION

- A. Door Curtains: Fabricate coiling counter door curtain of interlocking metal slats in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
  - 1. Stainless Steel Door Curtain Slats: ASTM A240/A240M or ASTM A666, Type 304; sheet thickness as indicated; and as required to meet performance requirements.
  - 2. Aluminum Door Curtain Slats: ASTM B209 sheet or ASTM B221 extrusions, alloy and
- B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

## 2.6 HOODS

- A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.
  - 1. Stainless Steel: Stainless steel sheet, Type 304, complying with ASTM A240/A240M or ASTM A666.
  - 2. Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.
- B. Removable Metal Soffit: Formed or extruded from same metal and with same finish as curtain if hood is mounted above ceiling unless otherwise indicated.

## 2.7 LOCKING DEVICES

- A. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.
  - 1. Lock Cylinders: As standard with manufacturer and keyed to building keying system.
  - 2. Keys: Three for each cylinder.
- B. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

## 2.8 CURTAIN ACCESSORIES

- A. Smoke Seals: Equip each fire-rated door with replaceable smoke-seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.



- B. Automatic-Closing Device: Equip each fire-rated door with an automatic-closing device or holder-release mechanism and governor unit complying with NFPA 80 and an easily tested and reset release mechanism. Release mechanism for motor-operated doors allows testing without mechanical release of the door. Automatic-closing device is to be designed for activation by the following:

- 1. Building fire-detection, smoke-detection, and -alarm systems.

## 2.9 COUNTER DOOR ACCESSORIES

- A. Fire-Rated, Laminate Counter: Fire-door manufacturer's high-pressure, decorative laminate-covered countertop; UL or ITS tested and labeled for 1-1/2-hour fire rating for approved use with fire-door assembly.

## 2.10 COUNTERBALANCE MECHANISM

- A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
- B. Counterbalance Barrel: Fabricate spring barrel of manufacturer's standard hot-formed, structural-quality, seamless carbon-steel pipe, of sufficient diameter and wall thickness to support rolled-up curtain without distortion of slats and to limit barrel deflection to not more than 0.03 in./ft. of span under full load.
- C. Counterbalance Spring: One or more oil-tempered, heat-treated steel helical torsion springs. Size springs to counterbalance weight of curtain, with uniform adjustment accessible from outside barrel. Secure ends of springs to barrel and shaft with cast-steel barrel plugs.
  - 1. Fire-Rated Doors: Equip with auxiliary counterbalance spring and prevent tension release from main counterbalance spring when automatic closing device operates.
- D. Torsion Rod for Counterbalance Shaft: Fabricate of manufacturer's standard cold-rolled steel, sized to hold fixed spring ends and carry torsional load.
- E. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

## 2.11 ELECTRIC DOOR OPERATORS

- A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
  - 1. Comply with NFPA 70.



2. Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V ac or dc.
- B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
- C. Door Operator Location(s): Operator location indicated for each door.
1. Concealed Tubular: Operator is mounted within hood.
  2. Wall Mounted: Operator is mounted to the inside front wall on the left or right side of door and connected to door drive shaft with drive chain and sprockets. Side room is required for this type of mounting. Wall-mounted operator can also be mounted above or below shaft; if above shaft, headroom is required.
- D. Motors: Reversible-type motor with controller (disconnect switch) for motor exposure indicated for each door assembly.
1. Electrical Characteristics: Minimum as indicated for each door assembly. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor.
  2. Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
  3. Coordinate wiring requirements and electrical characteristics of motors and other electrical devices with building electrical system and each location where installed.
- E. Limit Switches: Equip each motorized door with adjustable switches interlocked with motor controls and set to automatically stop door at fully opened and fully closed positions.
- F. Obstruction-Detection Devices: External entrapment protection consisting of indicated automatic safety sensor capable of protecting full width of door opening.
1. Electric Sensor Edge: Automatic safety sensor edge, located within astragal mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
    - a. Self-Monitoring Type: Four-wire-configured device designed to interface with door operator control circuit to detect damage to or disconnection of sensor edge.
- G. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and sustained- or constant-pressure push-button control labeled "Close."
1. Type: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.



- H. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf.
- I. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- J. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.
- K. Audible and Visual Signals: Audible alarm and visual indicator lights in compliance with the accessibility standard.

## 2.12 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.13 STAINLESS STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
  - 1. Run grain of directional finishes with long dimension of each piece.
  - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
  - 3. Directional Satin Finish: ASTM A480/A480M No. 4.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.



### 3.2 INSTALLATION, GENERAL

- A. Install coiling counter doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Install coiling counter doors, hoods, controls, and operators at the mounting locations indicated for each door.
- C. Accessibility: Install coiling counter doors, switches, and controls along accessible routes in compliance with the accessibility standard.
- D. Fire-Rated Doors: Install according to NFPA 80.
- E. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.
- F. Power-Operated Doors: Install according to UL 325.

### 3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and to furnish reports to Architect.
- B. Perform the following tests and inspections:
  - 1. Test door release, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed door. Reset door-closing mechanism after successful test.
  - 2. Fire-Rated Door Inspections: Inspect each fire-rated door in accordance with NFPA 80, section 5.2.
- C. Correct or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect corrected or replaced installations to determine if replaced or corrected door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80.

### 3.4 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
  - 1. Complete installation and startup checks according to manufacturer's written instructions.
  - 2. After electrical circuitry has been energized, operate doors to confirm proper motor rotation and door performance.
  - 3. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.



### 3.5 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust seals to provide tight fit around entire perimeter.

### 3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain coiling counter doors.

END OF SECTION 08 33 13



**SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Aluminum-framed storefront systems.
  - 2. Entrance door systems.

**1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and discuss the finishing of aluminum storefront that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
  - 2. Review, discuss, and coordinate the interrelationship of aluminum storefront with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.
  - 3. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  - 4. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

**1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Sections "Door Hardware" and "Glazing" concurrently.

**1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
  - 1. Entrance door hardware.
  - 2. Accessories.



- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Thermally broken framing.
  - 2. Thermal entrance doors.
- C. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
  - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 2. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
  - 3. Show provisions for coordination with door hardware, electrically operated door hardware, and access control and security systems.
- D. Samples: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Delegated Design Submittal: For aluminum-framed entrances and storefronts including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Sample Warranties: For special warranties.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
  - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- B. Performance Reports: For fiberglass reinforced polyester (FRP) face sheet doors, showing compliance with fire-performance and door construction requirements.

#### 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.
- B. Warranties: Executed special warranties.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.



- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

## 1.9 WARRANTY

- A. Special Warranty: Manufacturer and/or Installer agrees to correct or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including, but not limited to, excessive deflection.
    - b. Noise or vibration created by wind and thermal and structural movements.
    - c. Deterioration of metals and other materials beyond normal weathering.
    - d. Water penetration through fixed glazing and framing areas.
    - e. Failure of operating components.
  - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D 4214.
    - c. Cracking, peeling, or chipping.
  - 2. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitation: Obtain all components of aluminum-framed entrance and storefront system, including framing and accessories, and entrance doors when available, from single manufacturer.



## 2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
  - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
  - 2. Failure also includes the following:
    - a. Thermal stresses transferring to building structure.
    - b. Glass breakage.
    - c. Noise or vibration created by wind and thermal and structural movements.
    - d. Loosening or weakening of fasteners, attachments, and other components.
    - e. Failure of operating units.
- C. Structural Loads:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members Supporting Glass: At design wind load, as follows:
  - 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans of up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches.
  - 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.
    - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
  - 3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
    - a. Perpendicular to Plane of Wall: No greater than 1/240 of clear span plus 1/4 inch for spans greater than 6 feet 9 inches or 1/175 times span, for spans of less than 6 feet 9 inches.
- E. Structural: Test in accordance with ASTM E330/E330M as follows:
  - 1. When tested at positive and negative wind-load design pressures, storefront assemblies, including entrance doors, do not evidence deflection exceeding specified limits.



2. When tested at 150 percent of positive and negative wind-load design pressures, storefront assemblies, including entrance doors and anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
  3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Water Penetration under Static Pressure: Test in accordance with ASTM E331 as follows:
1. No evidence of water penetration through fixed glazing and framing areas, including entrance doors, when tested in accordance with a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10 lbf/sq. ft..
- G. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
1. Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on building occupancy type when tested in accordance with AAMA 501.6 at design displacement and 1.5 times the design displacement.
- H. Energy Performance: Certified and labeled by manufacturer for energy performance as follows:
1. Thermal Transmittance (U-factor):
    - a. Thermally Broken Fixed Glazing and Framing Areas: U-factor for the system of not more than 0.38 Btu/sq. ft. x h x deg F as determined in accordance with NFRC 100.
    - b. Thermal Entrance Doors: U-factor of not more than 0.77 Btu/sq. ft. x h x deg F as determined in accordance with NFRC 100.
    - c. Flush Entrance Doors: U-factor of not more than 0.37 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
  2. Solar Heat-Gain Coefficient (SHGC):
    - a. Thermally Broken Fixed Glazing and Framing Areas: SHGC for the system of not more than 0.38 as determined in accordance with NFRC 200.
    - b. Thermal Entrance Doors: SHGC of not more than 0.38 as determined in accordance with NFRC 200.
  3. Air Leakage:
    - a. Thermally Broken Fixed Glazing and Framing Areas: Air leakage for the system of not more than 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft. when tested in accordance with ASTM E283 or NFRC 400.
    - b. Thermal Entrance Doors: Air leakage of not more than 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.



4. Condensation Resistance Factor (CRF):
  - a. Thermally Broken Fixed Glazing and Framing Areas: CRF for the system of not less than 62 as determined in accordance with AAMA 1503.
  - b. Thermal Entrance Doors: CRF of not less than 40 as determined in accordance with AAMA 1503.
- I. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone 2 for enhanced protection.
  1. Large-Missile Test: For glazing located within 30 feet of grade.
  2. Small-Missile Test: For glazing located between 30 feet and 60 feet above grade.
- J. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.
  1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.3 STOREFRONT SYSTEMS, GENERAL

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
  1. Exterior Framing Construction: Thermally broken.
  2. Interior Framing Construction: Thermally broken.
  3. Glazing System: Retained mechanically with gaskets on four sides.
  4. Glazing Plane: Center.
  5. Finish: Clear anodic finish.
  6. Fabrication Method: Field-fabricated stick system.
  7. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  8. Steel Reinforcement: As required by manufacturer.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Insulated Spandrel Panels: Comply with Division 08 Section "Glazing."

## 2.4 STOREFRONT SYSTEM TYPES

- A. Types: Provide the following types in locations indicated on Drawings:
  1. Thermally broken framing.



## 2.5 THERMALLY BROKEN FRAMING

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; System 403X Dual-Thermal Flush-Glazed Storefront.
  - 2. Kawneer; Trifab 451UT Framing System.
  - 3. YKK AP America Inc.; YES 45 XT Storefront System.
- B. Framing Size: 2-inch by 4-1/2-inch.

## 2.6 ENTRANCE DOOR SYSTEMS, GENERAL

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
- B. Door Construction:
  - 1. Thermal Entrance Door Construction: Glazed entrance doors with extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
    - a. Thermal Construction: High-performance plastic connectors separate aluminum members exposed to the exterior from members exposed to the interior.
  - 2. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
    - a. Provide nonremovable glazing stops on outside of door.
  - 3. Finish: Match adjacent storefront framing finish..

## 2.7 ENTRANCE DOOR TYPES

- A. Types: Provide the following entrance door types in locations indicated on Drawings:
  - 1. Thermal entrance doors.

## 2.8 THERMAL ENTRANCE DOORS

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series D302 Medium Stile ThermaStile Entrances.
  - 2. Kawneer; 350T Insulpour Thermal Entrances.
  - 3. YKK AP America Inc.; MegaTherm 35XT Medium Stile Entrances.
- B. Depth: 2- to 2-3/8-inch.



- C. Door Design: Medium stile, 3-1/2-inch nominal width.
- D. Bottom Rail: Height to comply with accessibility requirements.

## 2.9 ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware: Hardware not specified in this Section is specified in Division 08 Section "Door Hardware."
- B. General: Provide entrance door hardware and entrance door hardware sets indicated in door and frame schedule for each entrance door, to comply with requirements in this Section.
  - 1. Opening-Force Requirements:
    - a. Egress Doors: Not more than 15 lbf to release the latch and not more than 30 lbf to set the door in motion and not more than 15 lbf to open the door to its minimum required width.
    - b. Accessible Interior Doors: Not more than 5 lbf to fully open door.
- C. Removable Mullions: BHMA A156.3 extruded aluminum.
  - 1. When used with panic exit devices, provide **keyed** removable mullions listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing in accordance with UL 305. Use only mullions that have been tested with exit devices to be used.
- D. Weather Stripping: Manufacturer's standard replaceable components.
  - 1. Compression Type: Made of ASTM D2000 molded neoprene or ASTM D2287 molded PVC.
  - 2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- E. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.
- F. Thresholds: BHMA A156.21 raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch.

## 2.10 GLAZING

- A. Glazing: Comply with Division 08 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.



## 2.11 MATERIALS

- A. Sheet and Plate: ASTM B209.
- B. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221.
- C. Structural Profiles: ASTM B308/B308M.
- D. Steel Reinforcement:
  - 1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
  - 2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
  - 3. Hot-Rolled Sheet and Strip: ASTM A1011/A1011M.
- E. Steel Reinforcement Primer: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods in accordance with recommendations in SSPC-SP COM, and prepare surfaces in accordance with applicable SSPC standard.

## 2.12 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
  - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  - 2. Reinforce members as required to receive fastener threads.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
  - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A123/A123M or ASTM A153/A153M requirements.
- C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint containing no asbestos, formulated for 30-mil thickness per coat.

## 2.13 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.



- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Physical and thermal isolation of glazing from framing members.
  - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 5. Provisions for field replacement of glazing from interior.
  - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
  - 1. At interior and exterior doors, provide compression weather stripping at fixed stops. Blade-type stops are not acceptable.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
  - 1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
  - 2. At exterior doors, provide weather sweeps applied to door bottoms.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project in accordance with Shop Drawings.

## 2.14 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.



### 3.2 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions.
- B. Do not install damaged components.
- C. Fit joints to produce hairline joints free of burrs and distortion.
- D. Rigidly secure nonmovement joints.
- E. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
- F. Seal perimeter and other joints watertight unless otherwise indicated.
- G. Metal Protection:
  - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
  - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- H. Set continuous sill members and flashing in full sealant bed, as specified in Division 07 Section "Joint Sealants," to produce weathertight installation.
- I. Install joint filler behind sealant as recommended by sealant manufacturer.
- J. Install components plumb and true in alignment with established lines and grades.

### 3.3 INSTALLATION OF OPERABLE UNITS

- A. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

### 3.4 INSTALLATION OF GLAZING

- A. Install glazing as specified in Division 08 Section "Glazing."

### 3.5 INSTALLATION OF ALUMINUM-FRAMED ENTRANCE DOORS

- A. Install entrance doors to produce smooth operation and tight fit at contact points.
  - 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.



2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware in accordance with entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

### 3.6 ERECTION TOLERANCES

- A. Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
  1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
  2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
  3. Alignment:
    - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
    - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
    - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
  4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

### 3.7 FIELD QUALITY CONTROL

- A. Special Inspections: Special Inspections are required for the work of this Section. Refer to Division 01 Section "Quality Requirements" and its attachments.

### 3.8 MAINTENANCE SERVICE

- A. Entrance Door Hardware Maintenance:
  1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of entrance door hardware.

END OF SECTION 08 41 13



## **SECTION 08 51 13 - ALUMINUM WINDOWS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes aluminum windows for exterior locations.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Section "Glazing" concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, and finishes.
  - 1. Hardware.
  - 2. Accessories.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the "**As-Specified Verification Form**" (attached to Division 01 Section "Submittal Procedures") for each item listed below, otherwise submit full Product Data for the following:
  - 1. Horizontal sliding windows.
- C. Shop Drawings: For aluminum windows.
  - 1. Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.
  - 2. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- D. Samples: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.



- F. Sample Warranties: For special warranties.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Energy Performance Certificates: For aluminum windows, from manufacturer.
  - 1. Basis for Certification: Energy performance values for each aluminum window meeting specified NFRC requirements.

## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum windows to include in maintenance manuals.
- B. Warranties: Executed special warranties.

## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An installer acceptable to aluminum window manufacturer for installation of units required for this Project.

## 1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace aluminum windows that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to meet performance requirements.
    - b. Structural failures including excessive deflection, water leakage, condensation, and air infiltration.
    - c. Faulty operation of movable sash and hardware.
    - d. Deterioration of materials and finishes beyond normal weathering.
    - e. Failure of insulating glass.
  - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to restore finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D 2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
    - c. Cracking, peeling, or chipping.
  - 2. Warranty Period: 10 years from date of Substantial Completion.



## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain all components of aluminum windows, including accessories, from single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as indicated.
- C. Accessibility Requirements: For window hardware, comply with the USDOJ's "2010 ADA Standards for Accessible Design," ICC A117.1, and building Code in effect for Project.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.

### 2.3 ALUMINUM WINDOWS, GENERAL

- A. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.
- B. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.
  - 1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

### 2.4 ALUMINUM WINDOW TYPES

- A. Types: Provide the following aluminum window types in locations indicated on Drawings:
  - 1. Horizontal sliding.

### 2.5 HORIZONTAL SLIDING WINDOWS

- A. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
  - 1. EFCO Corporation; Series SX45 Thermal Horizontal Sliding.
  - 2. Graham Architectural Products; GT0200 Series Horizontal Sliding.
  - 3. Kawneer Company, Inc.; Series AA 5450 Ultra Thermal Horizontal Sliding Window.



- B. Overall Unit Depth: 4 to 4-5/8 inches.
- C. Minimum Performance Class and Grade: AW-PG40-HS.

## 2.6 WINDOW HARDWARE

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.
  - 1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.
- B. Horizontal-Sliding Window Hardware:
  - 1. Sill Cap/Track: Manufacturer's standard of dimensions and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior.
  - 2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
  - 3. Roller Assemblies: Low-friction design.

## 2.7 GLAZING

- A. Glass: Comply with Division 08 Section "Glazing."
- B. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

## 2.8 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Glaze aluminum windows in the factory.
- C. Weather strip each operable sash to provide weathertight installation.
- D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.
- F. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.



## 2.9 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.
- C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight window installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.
- C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

### 3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
  - 1. Keep protective films and coverings in place until final cleaning.



- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 08 51 13



## **SECTION 08 56 53 – SECURITY WINDOWS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Sliding, bullet-resistance-rated transaction security window assemblies.

#### **1.3 COORDINATION**

- A. Coordinate installation of anchorages for security windows. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, anchor bolts, and items with integral anchors, that are to be embedded in adjacent construction. Deliver such items to Project site in time for installation.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include construction details, material descriptions, dimensions of individual components and profiles, weights and finishes for window units.
  - 1. Sliding, bullet-resistance-rated transaction security window assemblies.
- B. Shop Drawings: For security windows.
  - 1. Include plans, elevations, sections, and attachment details.
  - 2. Hardware for sliding window units.
  - 3. Glazing details.
- C. Samples: For frame members with factory-applied finishes.



## 1.6 INFORMATIONAL SUBMITTALS

- A. Bullet-Resistance-Rated Performance Certification: For each type of bullet-resistance-rated security window assembly for tests performed by a qualified testing agency indicating compliance with performance requirements.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Pack security windows in wood crates for shipment.
- B. Label security window packaging with drawing designation.
- C. Store crated security windows on raised blocks to prevent moisture damage.

## 1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

# PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. Bullet-Resistance-Rated Transaction Security Window Assembly: Provide units identical to those tested for compliance with requirements indicated, and as follows:
  - 1. Listed and labeled as Level 1 when tested according to UL 752.

## 2.2 TRANSACTION SECURITY WINDOWS

- A. Provide , transaction security window with slide up deal window and speak-thru.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Quikserv Corp.
- B. Configuration: One fixed-glazed panel with inset slide up deal window centered on the bottom of the frame.
- C. Operation: Manual operating slide up deal window.
- D. Framing: Fabricate perimeter framing, mullions, and glazing stops from aluminum.
- E. Deal Window Hardware: Provide manufacturer's standard vertical-sliding glazed panel with manual latch. Provide manufacturers standard speak-thru



- F. Glazing and Glazing Materials: Comply with requirements in Division 08 Section " Glazing" and as follows:
1. Bullet-Resistance-Rated Glazing: Manufacturer's standard bullet-resistant glazing meeting the requirements of UL 752, Level 1.
  2. Refer to specification section 088000 for additional Bullet Resistance-Rated Glazing requirements.
- G. Materials:
1. Mild Steel Plates, Shapes, and Bars: ASTM A36/A36M.
  2. Metallic-Coated Steel Sheet: ASTM A653/A653M, CS (Commercial Steel), Type B; with G60 zinc (galvanized) or A60 zinc-iron-alloy (galvannealed) coating designation.
  3. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A666 or ASTM A240/A240M, austenitic stainless steel, Type 304.
  4. Aluminum Extrusions: ASTM B221. Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi ultimate tensile strength.
  5. Aluminum Sheet and Plate: ASTM B209.

## 2.3 FABRICATION

- A. General: Fabricate security windows to provide a complete system for assembly of components and anchorage of window units.
1. Provide units that are reglazable from the secure side without dismantling the attack side of framing.
- B. Framing: Miter or cope corners the full depth of framing; weld and dress smooth.
1. Fabricate framing with manufacturer's standard, internal opaque armoring in thicknesses required for security windows to comply with bullet-resistance performance indicated.
- C. Glazing Stops: Finish glazing stops to match security window framing.
1. Attack-Side (Exterior) Glazing Stops: Welded or integral to framing.
  2. Secure-Side (Interior) Glazing Stops: Removable, coordinated with glazing indicated.
- D. Metal Protection: Separate dissimilar metals to protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
- E. Preglazed Fabrication: Preglaze window units at factory, where required for applications indicated. Installation orientation of glazing to meet performance requirements. Comply with requirements in Division 08 Section " Glazing."



## 2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.5 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## 2.6 ACCESSORIES

- A. Concealed Bolts: ASTM A307, Grade A unless otherwise indicated.
- B. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16 inch thick; with minimum 1/2-inch-diameter, headed studs welded to back of plate.
- C. Anchors, Clips, and Window Accessories: Stainless steel; hot-dip, zinc-coated steel or iron, complying with ASTM B633; provide sufficient strength to withstand design pressures indicated.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- E. Sealants: For sealants required within fabricated security windows, provide type recommended by manufacturer for joint size and movement.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of security windows.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations of security window connections before security window installation.
- C. Inspect built-in and cast-in anchor installations, before installing security windows, to verify that anchor installations comply with requirements.
  - 1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Reinspect after repairs or replacements are made.



2. Perform additional inspections to determine compliance of replaced or additional work.
- D. For factory-installed glazing materials whose orientation (secure or attack side) is critical for performance, verify installation orientation.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.
- F. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing security windows to in-place construction. Include threaded fasteners for inserts, security fasteners, and other connectors.
- B. Fasteners: Install security windows using fasteners recommended by manufacturer with head style appropriate for installation requirements, strength, and finish of adjacent materials. Provide stainless-steel fasteners.
- C. Sealants: Comply with requirements in Division 07 Section "Joint Sealants" for installing sealants, fillers, and gaskets.
- D. Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended in writing by manufacturer for this purpose. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

### 3.3 ADJUSTING

- A. Adjust horizontal-sliding, transaction security windows to provide a tight fit at contact points for smooth operation and a secure enclosure.
- B. Remove and replace defective work, including security windows that are warped, bowed, or otherwise unacceptable.

### 3.4 CLEANING AND PROTECTION

- A. Clean surfaces promptly after installation of security windows. Take care to avoid damaging the finish. Remove excess sealant, dirt, and other substances.
  1. Lubricate sliding security window hardware.
- B. Clean glass of preglazed security windows promptly after installation. Comply with requirements in Division 08 Section "Glazing" for cleaning and maintenance.
- C. Provide temporary protection to ensure that security windows are without damage at time of Substantial Completion.



### 3.5 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain operable security windows.

END OF SECTION 08 56 53



## **SECTION 08 62 00 - UNIT SKYLIGHTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Self-flashing unit skylights with integral curbs.

#### **1.3 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of unit skylight. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for unit skylights.
  - 1. Fasteners.
  - 2. Dome-type unit skylights with integral curbs.
- B. Shop Drawings: For unit skylight work.
  - 1. Include plans, elevations, sections, details, and connections to supporting structure and other adjoining work. Include details of provisions for assembly expansion and contraction and for draining moisture within the assembly to the exterior.
- C. Aluminum Finish Samples: For each type of exposed finish required, in a representative section of each unit skylight in manufacturer's standard size.
- D. Glazing Samples: For each color and finish of glazing indicated, 12 inches square and of same thickness indicated for the final Work.
- E. Product Schedule: For unit skylights.



- F. Sample Warranty: For special warranty.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Energy Performance Certificates: For unit skylights, from manufacturer.
  - 1. Basis for Certification: Energy performance values for each unit skylight meeting specified NFRC requirements.
- B. Product Certificates: For unit skylights indicating compliance with OSHA requirements for fall protection.

## 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For unit skylights.
- B. Warranty: Executed special warranty.

## 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating unit skylights that meet or exceed performance requirements indicated and of documenting this performance.

## 1.9 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of unit skylights that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Uncontrolled water leakage.
    - b. Uncontrolled condensation.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - d. Yellowing of acrylic glazing.
    - e. Breakage of polycarbonate glazing.
  - 2. Warranty Period: Five years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Unit Skylight Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.



1. Performance Class and Grade: Class CW-PG 70.
  2. Structural Loads: As indicated on Drawings.
  3. Certification: AAMA-, WDMA-, or CSA-certified unit skylights with label attached to each.
- B. Thermal Transmittance: NFRC 100 maximum U-factor of 0.50 Btu/sq. ft. x h x deg F.
- C. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum SHGC of 0.40.
- D. Air Infiltration: Maximum air leakage rate of 0.3 cfm/sq. ft. when tested in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 or NFRC 400.
- E. Condensation Resistance (CR): NFRC 500 minimum of 49.
- F. Fall Protection: Provide means to comply with OSHA fall protection requirements, including, at a minimum, safety cage of welded galvanized or stainless-steel wire mesh, 4-inch by 4-inch spacing, for exterior mounting over skylight.”

## 2.2 DOME-TYPE UNIT SKYLIGHTS

- A. General: Provide thermally-broken, factory-assembled unit skylights that include glazing, extruded-aluminum glazing retainers, gaskets, and inner frames and that are capable of withstanding performance requirements indicated.
- B. High Performance Skylights:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Wasco Skylights, part of the Velux Group; EcoSky3 (double acrylic dome—white outer, clear inner dome; polycarbonate-insulating-panel with aerogel) Model E3SA2, or comparable product.
    - a. Acrylic Double-Glazing Profile: Dome, 25 percent rise.
      - 1) Thickness: Not less than required to exceed performance requirements.
      - 2) Outer Glazing Color: White, translucent; Wasco “Satin Sky 2.”
      - 3) Inner Glazing Color: Colorless, transparent.
    - b. Polycarbonate-Insulating-Panel Glazing:
      - 1) Thickness: 10 mm.
      - 2) Color: Colorless.
      - 3) Fill spaces with aerogel.
- C. Unit Shape and Size: Dimensions to match existing openings, approximate dimensions as indicated on Drawings.
- D. Acrylic Glazing: ASTM D4802, thermoformable, monolithic sheet, category as standard with manufacturer, Finish 1 (smooth or polished), Type UVF (formulated with UV absorber).



1. Self-Ignition Temperature: 650 deg F or more for plastic sheets in thickness indicated when tested according to ASTM D1929.
  2. Smoke-Production Characteristics: Smoke-developed index of 450 or less when tested according to ASTM E84, and smoke density of 75 or less when tested according to ASTM D2843.
  3. Burning Characteristics: Tested according to ASTM D635. Class CC2, burning rate of 2-1/2 inches per minute or less for nominal thickness of 0.060 inch or thickness indicated for use.
- E. Polycarbonate Glazing: Thermoformable, extruded monolithic sheets, UV resistant, burglar-resistance rated according to UL 972, and with average impact strength of 12 to 16 ft-lb/in. of width when tested according to ASTM D256, Test Method A (Izod).
1. Self-Ignition Temperature: 650 deg F or more for plastic sheets in thickness indicated when tested according to ASTM D1929.
  2. Smoke-Production Characteristics: Smoke-developed index of 450 or less when tested according to ASTM E84, and smoke density of 75 or less when tested according to ASTM D2843.
  3. Burning Characteristics: Tested according to ASTM D635. Class CC1, burning extent of 1 inch or less for nominal thickness of 0.060 inch or thickness indicated for use.
- F. Polycarbonate-Insulating-Panel Glazing: Manufacturer's standard polycarbonate sheet with cellular cross section that provides isolated airspaces and that is coextruded with a UV-protective layer. Fill airspaces with aerogel.
1. Self-Ignition Temperature: 650 deg F or more for plastic sheets in thickness indicated when tested according to ASTM D1929.
  2. Smoke-Production Characteristics: Smoke-developed index of 450 or less when tested according to ASTM E84, and smoke density of 75 or less when tested according to ASTM D2843.
  3. Burning Characteristics: Tested according to ASTM D635. Class CC2, burning rate of 2-1/2 inches per minute or less for nominal thickness of 0.060 inch or thickness indicated for use.
- G. Glazing Gaskets: Manufacturer's standard.
- H. Retainer Frame: Aluminum, clear anodic finish.
- I. Curb Frame: PVC or clear anodic finish aluminum.
- J. Integral Curb: Aluminum, self-flashing type.
1. Aluminum Sheet: Alloy and temper to suit structural and finish requirements but not less than 0.032-inch thick.
    - a. Exterior Finish: Mill.



- b. Interior Finish: Clear anodic or manufacturer's standard factory-applied painted "WHITE" finish.
- 2. Height: 12 inches.
- 3. Construction: Double wall, thermally-broken, with aluminum on both faces encasing insulation.
- 4. Insulation: Manufacturer's standard rigid or semirigid type.
  - a. R-Value: Not less than 5.7 according to ASTM C1363.
- K. Condensation Control: Fabricate unit skylights with integral internal gutters and non-clogging weeps to collect and drain condensation to the exterior.
- L. Thermal Break: Fabricate unit skylights with thermal barrier separating exterior and interior metal framing or with thermal chamber in PVC frame.
- M. Fall Protection: Provide means to comply with OSHA fall protection requirements, including, at a minimum, safety cage of welded galvanized or stainless-steel wire mesh, 4-inch by 4-inch spacing, for exterior mounting over skylight."

## 2.3 ACCESSORY MATERIALS

- A. Fasteners: Screws complying with ASME B18.6.1, Series 300 stainless steel, non-magnetic, torx or square drive, #10, length as required to provide minimum embedment of 1-1/2-inches into substrate. Use stainless steel washers.
  - 1. Where removal of exterior exposed fasteners might allow access to building, provide nonremovable fastener heads.

## 2.4 ALUMINUM FINISHES

- A. Mill Finish: Manufacturer's standard.
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- C. Manufacturers standard factory-applied painted finish.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.,



### 3.2 INSTALLATION

- A. Coordinate installation of unit skylight with installation of substrates, vapor retarders, roof insulation, roofing membrane, and flashing as required to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight.
- B. Comply with recommendations in AAMA 1607 and with manufacturer's written instructions for installing unit skylights.
- C. Install unit skylights level, plumb, and true to line, without distortion.
- D. Anchor unit skylights securely to supporting substrates with specified fasteners at spacing not to exceed 12 inches on center.
- E. Install fall protection screen per manufacturer's requirements.
- F. At locations where wood blocking would otherwise be exposed to the building interior, provide aluminum closure trim matching curb interior finish, not less than 0.040-inch thickness. Install from exterior with concealed fasteners prior to setting of unit skylight.

### 3.3 CLEANING

- A. Clean exposed unit skylight surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes.
  - 1. At skylight replacement locations with existing ceiling domes, clean and reinstall existing ceiling domes after completion of skylight replacement.
- B. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Remove and replace glazing that has been broken, chipped, cracked, abraded, or damaged during construction period.
- D. Protect unit skylight surfaces from contact with contaminating substances resulting from construction operations.

END OF SECTION 08 62 00



## **SECTION 08 71 00 - DOOR HARDWARE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes:
  - 1. Mechanical door hardware for the following:
    - a. Swinging doors.
  - 2. Cylinders for door hardware specified in other Sections.
  - 3. Electrified door hardware.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated. Include construction and installation details, material descriptions, dimensions of individual components and profiles, and finishes.
  - 1. Hinges.
  - 2. Continuous hinges.
  - 3. Mortise locks.
  - 4. Electric strikes.
  - 5. Exit devices and auxiliary items.
  - 6. Lock cylinders.
  - 7. Construction cores.
  - 8. Keying system/keys.
  - 9. Key control software.
  - 10. Cross-index system.
  - 11. Surface closers.
  - 12. Wall stops.
  - 13. Electromagnetic door holders.
  - 14. Door gasketing.
  - 15. Metal protective trim units.
  - 16. Auxiliary hardware.



- B. Shop Drawings: Details of electrified door hardware, indicating the following:
1. Wiring Diagrams: For power, signal, and control wiring and including the following:
    - a. Details of interface of electrified door hardware and building safety and security systems.
  2. Operation Narrative: Describe the operation of doors controlled by electrified door hardware.
- C. Samples for Verification: For exposed door hardware of each type required, in each finish specified, prepared on Samples of size indicated below. Tag Samples with full description for coordination with the door hardware schedule.
1. Sample Size: Full-size units or minimum 2-by-4-inch Samples for sheet and 4-inch long Samples for other products.
- D. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
  2. Content: Include the following information:
    - a. Identification number, location, hand, fire rating, size, and material of each door and frame.
    - b. Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
    - c. Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.
    - d. Description of electrified door hardware sequences of operation and interfaces with other building control systems.
    - e. Fastenings and other pertinent information.
    - f. Explanation of abbreviations, symbols, and codes contained in schedule.
    - g. Mounting locations for door hardware.
- E. Keying Schedule: Prepared by or under the supervision of Installer, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations that are coordinated with the Contract Documents.
- F. Warranty: Sample of special warranty specified in this Section.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For electrified door hardware, from the manufacturer.
1. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.



## 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of door hardware to include in maintenance manuals. Include final hardware and keying schedule.
- B. Warranty: Executed special warranty specified in this Section.

## 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
  - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
  - 2. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as follows:
  - 1. For door hardware, an Architectural Hardware Consultant (AHC).
- C. Source Limitations: Obtain each type of door hardware from a single manufacturer.
- D. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated, provide door hardware rated for use in assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C, unless otherwise indicated.
- E. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meet requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
  - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. at the tested pressure differential of 0.3-inch wg of water.
- F. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- G. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
- H. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines, ICC/ANSI A117.1 and building code in effect for Project.
  - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.



2. Comply with the following maximum opening-force requirements:
  - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
  - b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
4. Adjust door closer sweep periods so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.

I. Preinstallation Conference: Conduct conference at Project site.

1. Inspect and discuss preparatory work performed by other trades.
2. Inspect and discuss electrical roughing-in for electrified door hardware.
3. Review sequence of operation for each type of electrified door hardware.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with the final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

## 1.9 COORDINATION

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- C. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.



1. Failures include, but are not limited to, the following:
  - a. Structural failures including excessive deflection, cracking, or breakage.
  - b. Faulty operation of doors and door hardware.
  - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
2. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.
  - a. Exit Devices: Two years from date of Substantial Completion.
  - b. Manual Closers: Lifetime.
  - c. Locksets: Lifetime
  - d. Hinges: Lifetime

#### 1.11 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

### PART 2 - PRODUCTS

#### 2.1 SCHEDULED DOOR HARDWARE

- A. Provide door hardware for each door as scheduled in Part 3 "Door Hardware Schedule" Article to comply with requirements in this Section.
  1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products or products equivalent in function and comparable in quality to named products.
  2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
  3. Electric Locking Hardware: Exit hardware shall always remain fully operational manually regardless of the status of electric latch.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:
  1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.
  2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.



## 2.2 HINGES

- A. Hinges: BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Best
    - b. Hager
    - c. Stanley

## 2.3 CONTINUOUS HINGES

- A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.
- B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. ABH
    - b. Best
    - c. Select
    - d. Stanley

## 2.4 MECHANICAL LOCKS AND LATCHES

- A. Lock Functions: As indicated in door hardware schedule.
- B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:
  - 1. Mortise Locks: Minimum 3/4-inch latchbolt throw.
- C. Lock Backset: 2-3/4 inches, unless otherwise indicated.
- D. Lock Trim:
  - 1. Levers:
    - a. 14H or, if provided by another manufacturer, provide designs that match those designated.



- E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.
- F. Mortise Locks: BHMA A156.13; Operational and Security Grade 1; stamped steel case with steel or brass parts; Series 1000.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Best

## 2.5 ELECTRIC STRIKES

- A. Electric Strikes: BHMA A156.31; Grade 1; with faceplate to suit lock and frame.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Dormakaba
    - b. Securitech
    - c. Von Duprin

## 2.6 EXIT DEVICES AND AUXILIARY ITEMS

- A. Exit Devices and Auxiliary Items: BHMA A156.3.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Precision
    - b. Von Duprin

## 2.7 LOCK CYLINDERS

- A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work:
    - a. Best
- B. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.



## 2.8 KEYING

- A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
  - 1. Master Key System: Change keys and a master key operate cylinders.
  - 2. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.
  - 3. Existing System:
    - a. Master key or grand master key locks to Owner's existing system.
- B. Keys: Nickel silver.
  - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
    - a. Notation: "DO NOT DUPLICATE."
  - 2. Quantity: In addition to one extra key blank for each lock, provide the following:
    - a. Cylinder Change Keys: Three.
    - b. Master Keys: Five.
    - c. Grand Master Keys: Five.

## 2.9 KEY CONTROL SYSTEM

- A. Key Control Software: Provide as specified.

## 2.10 OPERATING TRIM

- A. Operating Trim: As specified.

## 2.11 SURFACE CLOSERS

- A. Surface Closers: BHMA A156.4; Cast iron with 1-1/2" minimum bore piston, rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Best.



- b. LCN.
- c. Sargent.

## 2.12 MECHANICAL STOPS AND HOLDERS

### A. Wall Stops: BHMA A156.16; brushed chrome plated.

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. ABH
  - b. Rockwood
  - c. Trimco

## 2.13 DOOR GASKETING

### A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. National Guard Products.
  - b. Pemko.
  - c. Reese.
  - d. Zero.

## 2.14 METAL PROTECTIVE TRIM UNITS

### A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch-thick stainless steel with manufacturer's standard machine or self-tapping screw fasteners.

- 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. ABH
  - b. Rockwood
  - c. Trimco.



## 2.15 AUXILIARY DOOR HARDWARE

### A. Auxiliary Hardware: BHMA A156.16.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. ABH
  - b. Best
  - c. Trimco

## 2.16 FABRICATION

### A. Manufacturer's Nameplate: Do not provide products that have manufacturer's name or trade name displayed in a visible location except in conjunction with required fire-rated labels and as otherwise approved by Architect.

1. Manufacturer's identification is permitted on rim of lock cylinders only.

### B. Base Metals: Produce door hardware units of base metal indicated, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18.

### C. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

### 2. Fire-Rated Applications:

#### a. Wood or Machine Screws: For the following:

- 1) Hinges mortised to doors or frames; use threaded-to-the-head wood screws for wood doors.
- 2) Strike plates to frames.
- 3) Closers to doors and frames.

#### b. Steel Through Bolts: For the following unless door blocking is provided:

- 1) Surface hinges to doors.
- 2) Closers to doors and frames.



3) Surface-mounted exit devices.

3. Spacers or Sex Bolts: For through bolting of hollow-metal doors.
4. Fasteners for Wood Doors: Comply with requirements in DHI WDHS.2, "Recommended Fasteners for Wood Doors."
5. Gasketing Fasteners: Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.

2.17 FINISHES

- A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
- B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."



### 3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
  - 1. Custom Steel Doors and Frames: HMMA 831.
  - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 09 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
  - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
  - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent.
- D. Lock Cylinders: Install construction cores to secure building and areas during construction period.
  - 1. Replace construction cores with permanent cores as indicated in keying schedule.
- E. Key Control: Tag keys as determined by final keying schedule.
- F. Stops: Provide wall stops for doors unless other type stops are indicated in door hardware schedule.
- G. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- H. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- I. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

### 3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
  - 2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.



- B. Occupancy Adjustment: Approximately six months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

### 3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of Substantial Completion.

### 3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

#### **Borden Middle School**

##### **Set #B1**

Doors: 100/1, 100/2, 101/1, 102/1(A), 103/1, 104/1, 105/1, 106/1, 107/1, 120/1, 138/1, 141/1, 142/1, 144/1146/1, 148/1, 144/1(?), 156A/1, 158/1, 159/1, 161/1, 181/1(A), 201/1, 202/1, 203/1, 204/1, 205/1, 205/1, 207/1, 208/1, 209/1, 210/1, 211/1, 212/1, 213/1, 214/1, 214/2, 215/1, 216/1, 217/1, 218/1, 219/1, 300/1, 301/1, 302/1, 303/1, 304/1, 306/1, 307/1, 308/1,

1 Modification Lock	SB175	626	SE
1 Rim Cylinder	12E-72 PATD	626	BE

##### **Set #B2**

Doors: 147/1, 147/2, 147/3

1 Rim Cylinder	12E-72 PATD	626	BE
1 Exit Device Kit	FL 2110VI KIT	630AM	PR

##### **Set #B3**

Doors: 102/2, 313/1

1 Rim Cylinder	12E-72 PATD	626	BE
1 Exit Device	FL 2110VI X 4908	630AM	PR



Set #B4

Doors: 157/2, 157/3, 157/4

1	Rim Cylinder	12E-72 PATD	626	BE
2	Exit Device	FL 2110VI X 4908A	630AM	PR
1	Removable Mullion	FLKR822	600	PR

Set #B5

Doors: 157A/1

3	Butt Hinge	CB1900R 4.5" x 4.5"	652	ST
1	Lockset	45H-7T14N PATD VIN	630AM	BE
1	Overhead Stop	N 4020	630	AB
3	Silencer	1229A	GREY	TR

Set #B6 (E)

Doors: V2/1

2	Continuous Hinge	662HD	AL	ST
1	Removable Mullion	KR822	600	PR
1	Exit Device	2602 CD	630AM	PR
1	Exit Device	ELR 2603 CD	630AM	PR
2	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
1	Power Transfer	PT1000	628	AB
2	Lockdown Hardware	LDH100-PHI	RPC	TR
1	Power Supply	ELR151		PR
1	Desk Control Switch	15-2-3	BLK	SD
2	Door Sweep	C627 A		NA
1	Threshold	896 S ADJ	AL	NA

Set #B7 (E)

Doors: V2/2

2	Continuous Hinge	662HD	AL	ST
1	Exit Device	2602 CD	630AM	PR
1	Exit Device	ELR 2603 CD	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
1	Power Transfer	PT1000	628	AB
2	Lockdown Hardware	LDH100-PHI	RPC	TR
1	Power Supply	ELR151		PR



Set #B8

Doors: V1/2

2	Continuous Hinge	662HD	AL	ST
2	Exit Device	2601	630AM	PR
2	Door Closer	QDC117	689	SH

Set #B9

Doors: V1/1

2	Continuous Hinge	662HD	AL	ST
1	Removable Mullion	822	600	PR
2	Exit Device	2401	630AM	PR
2	Door Closer	QDC117	689	SH
2	Door Sweep	C627 A		NA
1	Threshold	896 S ADJ	AL	NA

Set #B10

2	Continuous Hinge	662HD	AL	ST
2	Exit Device	FL 2110V1	630AN	PR
2	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Door Closer	QDC117 DA	689	BE
2	Lockdown Hardware	LDH100-PH1	RPC	TR
2	Kick Plate	K0050 8"	630	TR
2	Auto Door Bottom	4448	628	NGP
1	Gasketing	700S	AL	NA
				NA

**Wallkill High School**

Set #H1

Doors: 172/1, 172/2, 172/3, 172/4, 172/5, 173/1

1	Removable Mullion	FLKR822	600	PR
1	Exit Device (Exit Only)	FL2101	630AM	PR
1	Exit Device	FL 2110VI X 4908A	630AM	PR
2	Rim Cylinder	12E-72 PATD	626	BE
2	Electromagnetic Door Holder	2100 RS	630	AB
2	Door Closer	QDC115	689	SH



## Set #H2

Doors: 150/1, 150/10, 150/2, 150/3, 150/4, 150/5, 150/6, 150/8, 150/9, 150/7

1 Removable Mullion	FLKR822	600	PR
1 Exit Device (Exit Only)	FL2101	630AM	PR
1 Exit Device	FL 2110VI X 4908	630AM	PR
2 Rim Cylinder	12E-72 PATD	626	BE
2 Door Closer	QDC119	689	SH
2 Kick Plate	K0050 8"	630	TR
1 Gasketing	2525		NA

NOTE: Provide 8133 x 8143 x 8168N x 8139 x 10-24 MS/LA threshold at gym floor transition

## Set #H3

Doors: 160/1, 160/2

1 Removable Mullion	FLKR822	600	PR
1 Exit Device (Exit Only)	FL2101	630AM	PR
1 Exit Device	FL 2110VI X 4908A	630AM	PR
2 Rim Cylinder	12E-72 PATD	626	BE

## Set #H4

Doors: 100A/1, 100A/2, 100B/1, 102/1, 106/1, 110/1, 101/1, 114/1, 116A/1, 118/1, 119/1, 120/1, 121/1, 122/1, 123/1, 123/2, 103/1, 129/1, 104/1, 105/1, 136/1, 138/1, 139/1, 140/1, 141/1, 142/1, 106/1, 107/1, 108/1, 113/1, 112/1, 111/1, 110/1, 109/1, 115/1, 116/1, 117/1, 126/1, 127/1, 145A/1, 177/1, 178/1, 184/1, 191/1, 194/1, 200/1, 201/1, 202/1, 203/1, 204/1, 205/1, 206/1, 207/1, 208/1, 209/1, 210/1, 211/1, 212/1, 213A/1, 213/1, 214/1, 215/1, 216/1, 217/1, 217/1, 218/1, 219/1, 220/1, 221/1, 226/1, 226A/1, 227/1, 298/1, 212A/1, 302/1, 321/1, 330/1, 333/1, 338/1, 339/1, T106/1, T107/1, T108/1, T110/1, T111/1, T122/1, T122/2, V105/1

1 Modification Lock	SB175	626	SE
1 Rim Cylinder	12E-72 PATD	626	BE

## Set #H5 (E)

Doors: V1/1, V1/2, V1/3, V1/4

1 Continuous Hinge	662HD	AL	ST
1 Exit Device	ELR 2403	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE
1 Flush Pull	1111C	630AM	TR
1 Door Closer	QDC117	689	SH
1 Power Transfer	PT1000	628	AB
1 Power Supply	ELR151		PR
1 Desk Control Switch	15-2-3	BLK	SDCC
1 Door Sweep	C627 A		NA
1 Threshold	896 S	AL	NA

NOTE: Entire bank of doors to be controlled for bus loading/unloading and emergency lockdown due to exterior threat.



Set #H6 (E)

Doors: V1/5, V1/6, V1/7, V1/8

1 Continuous Hinge	662HD	AL	ST
1 Exit Device	ELR 2403	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE
1 Mortise Cylinder	1E-74 PATD	626	BE
1 Flush Pull	1111C	630AM	TR
1 Door Closer	QDC114	689	SH
1 Power Transfer	PT1000	628	AB
1 Power Supply	ELR151		PR

NOTE: Similar to HW5.

Set #H7

Doors: V2/1, V2/2, V2/3, V2/4

1 Continuous Hinge	662HD	AL	ST
1 Exit Device (Exit Only)	2401	630AM	PR
1 Door Closer	QDC114	689	SH
1 Door Sweep	C627 A		NA
1 Threshold	896 S	AL	NA

Set #H8

Doors: V2/6, V2/7, V2/8, V2/9

1 Continuous Hinge	662HD	AL	ST
1 Exit Device (Exit Only)	2401	630AM	PR
1 Door Closer	QDC114	689	SH

Set #H9

Doors: V2/5

2 Continuous Hinge	662HD	AL	ST
1 Removable Mullion	KR822	600	PR
2 Exit Device (Exit Only)	2401	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE
2 Door Closer	QDC114	689	SH
2 Door Sweep	C627 A		NA
1 Threshold	896 S	AL	NA



Set #H10

Doors: V2/10

2	Continuous Hinge	662HD	AL	ST
2	Exit Device (Exit Only)	2601	630AM	PR
1	Door Closer	QDC114	689	SH

Set #H11

Doors: 124/1

1	Modification Lock	SB175	626	SE
2	Surface Bolts	1805	626	AB
1	Rim Cylinder	12E-72 PATD	626	BE
1	Sound Seal	700 SA		NA

Set #H12

Doors: 151/1, 153/1

1	Exit Device	FL 2110VI X 4908	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE

Set #H13

Doors: 129/2

1	Removable Mullion	FLKR822	600	PR
2	Exit Device	FL 2110VI X 4908A	630AM	PR
3	Rim Cylinder	12E-72 PATD	626	BE

Set #H14

Doors: S/201

1	Removable Mullion	FLKR822	600	PR
2	Exit Device	FL 2110VI X 4908A	630AM	PR
3	Rim Cylinder	12E-72 PATD	626	

**Leptondale Elementary**

Set #L1

Doors: 21/1, 22/1, 23/1, 27/1, 28/1, 29/1, 7/1, 8/1, 9/1

Lockset 45H-7T14N PATD VIN



Set #L2

Doors: 1/1, 10/1, 11/1, 12/1, 13/1, 14/1, 14/2, 15/1, 16/1, 17/1, 18/1, 19/1, 2/1, 20/1, 24/1, 24/2, 25/1, 26/1, 3/1, 31/1, 32/1, 33/1, 4/1, 47/1, 51/2, 6/1, L105A/1, L106/1, L107/1, L108/1, L109/1, L113/1

1	Rim Cylinder	12E-72 PATD	626	BE
1	Modification Lock	SB175	626	BE

NOTE: Provide 45H-7T at

Set #L3

Doors: L110/1, L114/1

1	Exit Device	FL 2110VI X 4908A	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE

Set #L4 - Cafeteria

Doors: L105/1, L112/1, L112/2, L114/2

1	Removable Mullion	FLKR822	600	PR
3	Rim Cylinder	12E-72 PATD	626	BE
1	Exit Device (Exit Only)	FL2101	630AM	PR
1	Exit Device	FL 2110VI X 4908	630AM	PR

NOTE: Existing surface vertical rod exits to be removed with doors and frame patched. Typical.

Set #L5

Doors: 51/1

3	Rim Cylinder	12E-72 PATD	626	BE
1	Exit Device	FL2101	630AM	PR
1	Exit Device	FL 2110VI X 4908	630AM	PR
1	Removable Mullion	FLKR822	600	PR

NOTE: Existing Sargent concealed vertical rod exit device and rim exit device.

Set #L6 (E) - Entry, Both Leaves Active

Doors: V1/1

2	Continuous Hinge	662HD	AL	ST
1	Exit Device	ELR 2602 CD	630AM	PR
1	Exit Device	ELR 2603 CD	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
2	Power Transfer	PT1000	628	AB
1	Power Supply	ELR152		PR
1	Desk Control Switch	15-2-3	BLK	SDCC
2	Door Sweep	C627 A		NA
1	Threshold	896 S ADJ	AL	NA



Set #L7 - Exit Only

Doors: V1/2

2 Continuous Hinge	662HD	AL	ST
1 Removable Mullion	822	689	PR
2 Exit Device	2401	630AM	PR
2 Door Closer	QDC117	689	SH
2 Door Sweep	C627 A		NA
1 Threshold	896 S ADJ	AL	NA

Set #L8 (E) - Vestibule

Doors: V2/1

2 Continuous Hinge	662HD	AL	ST
1 Exit Device	ELR 2602 CD	630AM	PR
1 Exit Device	ELR 2603 CD	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE
2 Mortise Cylinder	1E-74 PATD	626	BE
2 Flush Pull	1111C	630AM	TR
2 Door Closer	QDC117	689	SH
2 Power Transfer	PT1000	628	AB
1 Power Supply	ELR152		PR

Set #L9 - Vestibule, Exit Only

Doors: V2/2

2 Continuous Hinge	662HD	AL	ST
1 Removable Mullion	822	689	PR
2 Exit Device	2401	630AM	PR
2 Door Closer	QDC117	689	SH

Set #L10

Doors: SO/1

3 Butt Hinge	CB1900R 4.5" x 4.5"	652	ST
1 Lockset	45H-7T14N PATD VIN	630AM	BE
1 Door Closer	QDC114	689	SH
1 Gasketing	2525		NA

**Ostrander Elementary**

Set #O1

Doors: , 1/1, 10/1, 11/1, 12/1, 13/1, 14/1, 15/1, 16/1, 17/1, 19/1, 2/1, 20/1, 21/1, 22/1, 24/1, 25/1, 26/1, 27/1, 28/1, 29/1, 3/1, 30/1, 31/1, 32/1, 33/1, 34/1, 36/1, 37/1, 38/1, 38/2, 4/1, 41/1, 42/1, 42/2, N42/1, 43/1, 5/1, 51/1, 56/1, 6/1, 7/1, 8/1, 9/1, C47/1, C47/2, LR38/1			
1 Lockset	45H-7T14N PATD VIN	630AM	BE



Set #02

Doors: 47/1, 48/1

1 Rim Cylinder	12E-72 PATD	626	BE
1 Exit Device	FL 2110VI X 4908A	630AM	PR

Set #03

Doors: 40/1, 40/2, 47/2

2 Rim Cylinder	12E-72 PATD	626	BE
1 Exit Device	FL2101	630AM	PR
1 Exit Device	FL 2110VI X 4908	630AM	PR
1 Removable Mullion	FLKR822	600	PR

Set #04

Doors: 23/1, 46/1, 46/2, 52/1, 53/1, 54/1, 55/1

1 Modification Lock	SB175	626	BE
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Set #05 (E)

Doors: V1/1, V1/2,

1 Continuous Hinge	662HD	AL	ST
1 Exit Device	ELR 2403	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE
1 Flush Pull	1111C	630AM	TR
1 Door Closer	QDC117	689	SH
1 Power Transfer	PT1000	628	AB
1 Power Supply	ELR151		PR
1 Desk Control Switch	15-2-3	BLK	SDCC
1 Door Sweep	C627 A		NA
1 Threshold	896 S	AL	NA

NOTE: Entire bank of doors to be controlled for bus loading/unloading and emergency lockdown due to exterior threat.

Set #06 (E)

Doors: V1/3, V1/4

- 1 Continuous Hinge
- 1 Exit Device
- 1 Rim Cylinder
- 1 Mortise Cylinder
- 1 Flush Pull
- 1 Door Closer
- 1 Power Transfer
- 1 Power Supply

NOTE: Similar to HW5.



Set #O7

Doors: V2/1, V2/2,

1 Continuous Hinge	662HD	AL	ST
1 Exit Device (Exit Only)	2401	630AM	PR
1 Door Closer	QDC114	689	SH
1 Door Sweep	C627 A		NA
1 Threshold	896 S	AL	NA

Set #H8

Doors: V2/3, V2/4

1 Continuous Hinge	662HD	AL	ST
1 Exit Device (Exit Only)	2401	630AM	PR
1 Door Closer	QDC114	689	SH

**Plattekill Elementary**

Set #P1

Doors: 1/1, 109/1, 11/1, 12/1, 13/1, 14/1, 15/1, 16/1, 17/1, 18/1, 2/1, 20/1, 21/1, 22/1, 23/1, 24/1, 25/1, 26/1, 27/1, 28/1, 29/1, 3/1, 30/1, 31/1, 37/1, 4/1, 47/1, 48/1, 49/1, 5/1, 6/1, 7A/1, P11/1, 6/2, C1/1, C1/2, C1/3, G1/1, G1/2, G7/1, P104/2, P106/1, P106/2

1 Lockset	45H-7T14N PATD VIN	630AM	BE
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Set #P2

Doors: 10/1, 19/1, 32/1, 8/1, 9/1, P104/1

1 Modification Lock	SB175	626	BE
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Set #P3

Doors: 34/1, 34/2, 7/1, 7/2

1 Exit Device	FL 2110VI X 4908A	630AM	PR
1 Rim Cylinder	12E-72 PATD	626	BE

Set #P4

Doors: 35/1, 35/2, 40/1, 41/1

3 Rim Cylinder	12E-72 PATD	626	BE
1 Exit Device (Exit Only)	FL2101	630AM	PR
1 Exit Device	FL 2110VI X 4908	630AM	PR
1 Removable Mullion	FLKR822	600	PR

NOTE: Existing surface vertical rod exits.



Set #P5

Doors: 111A/1 P, P113/1 P

3	Butt Hinge	CB1900R 4.5" x 4.5"	652	ST
1	Lockset	45H-7T14N PATD VIN	630AM	BE
1	Door Closer	QDC111	689	SH
1	Kick Plate	K0050 8"	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	2525		NA

Set #P6

Doors: P104/1 P

3	Rim Cylinder	12E-72 PATD	626	BE
1	Exit Device	FL2101	630AM	PR
1	Exit Device	FL 2110VI X 4908	630AM	PR
1	Removable Mullion	FLKR822	600	PR

NOTE: Existing Sargent concealed vertical rod exit devices

Set #P7 (E) – Interior Vestibule

Doors: V1/2

2	Continuous Hinge	662HD	AL	ST
1	Exit Device	ELR 2602 CD	630AM	PR
1	Exit Device	ELR 2603 CD	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
2	Power Transfer	PT1000	628	AB
1	Power Supply	ELR152		PR

Set #P8 (E) - Exterior

Doors: V1/1

2	Continuous Hinge	662HD	AL	ST
1	Removable Mullion	KR822	600	PR
1	Exit Device	2602 CD	630AM	PR
1	Exit Device	ELR 2603 CD	630AM	PR
2	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
1	Power Transfer	PT1000	628	AB
2	Lockdown Hardware	LDH100-PHI	RPC	TR
1	Power Supply	ELR151		PR
1	Desk Control Switch	15-2-3	BLK	SD
2	Door Sweep	C627 A		NA
1	Threshold	896 S ADJ	AL	NA



Set #P9 - Exterior

Doors: V2/1

2	Continuous Hinge	662HD	AL	ST
1	Exit Device	2602 CD	630AM	PR
1	Exit Device	2603 CD	630AM	PR
1	Rim Cylinder	12E-72 PATD	626	BE
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Flush Pull	1111C	630AM	TR
2	Door Closer	QDC117	689	SH
2	Lockdown Hardware	LDH100-PHI	RPC	TR
1	Power Supply	ELR151		PR

Set #P10

Doors: V2/2

2	Continuous Hinge	662HD	AL	ST
2	Exit Device	2601	630AM	PR
2	Door Closer	QDC117	689	SH

END OF SECTION 08 71 00



## **SECTION 08 80 00 - GLAZING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Glass products.
  - 2. Laminated glass.
  - 3. Fire-protection-rated glazing.
  - 4. Security glazing.
  - 5. Insulating glass.
  - 6. Insulated spandrel panels.

#### **1.3 DEFINITIONS**

- A. Fire-Protection-Rated Glazing: Glazing in rated doors and openings up to 45 minutes (with certain exceptions), limited in size, and not capable of blocking radiant heat.
- B. Glazing Manufacturers: Firms that produce primary glazing, fabricated glazing, or both, as defined in referenced glazing publications.
- C. Glass Thicknesses: Indicated by thickness designations in millimeters in accordance with ASTM C1036.
- D. IBC: International Building Code.
- E. Interspace: Space between lites of an insulating-glass unit.
- F. SHGC: Solar Heat Gain Coefficient.

#### **1.4 COORDINATION**

- A. Coordinate glazing channel dimensions to provide necessary bite on glazing, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.
  - 1. Coordinate framing types to provide proper framing fire rating.
  - 2. Coordinate framing types to provide proper framing forced-entry-resistance rating.
  - 3. Coordinate framing types to provide proper framing bullet-resistance rating.



## 1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress.
  - 2. Review, discuss, and coordinate the interrelationship of glazing with other components, including framing.
  - 3. Review temporary protection requirements for glazing during and after installation.

## 1.6 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section and by Division 08 Sections "Hollow Metal Doors and Frames", "Flush Wood Doors", "Aluminum-Framed Entrances and Storefronts", "Aluminum Windows" and "Sliding Security Windows," concurrently.

## 1.7 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Spandrel glass
  - 2. Laminated glass.
  - 3. Insulating glass.
  - 4. Insulated spandrel panels.
- B. As-Specified Data: If the product to be incorporated in the Work is as specified by manufacturer name and product designation in this Specification Section, submit the "**As-Specified Verification Form**" (attached to Division 01 Section "Submittal Procedures") for each item listed below; otherwise submit full Product Data for the following:
  - 1. Glass products.
  - 2. Fire-protection-rated glazing.
  - 3. Fire-resistance-rated glazing.
  - 4. Security glazing.
- C. Sustainable Design Submittals:
  - 1. Product Data: For sealants, indicating VOC content.
- D. Samples: For each type of the following products; 12 inches square.
  - 1. Spandrel glass
  - 2. Laminated glass.
  - 3. Fire-protection-rated glazing.
  - 4. Security glazing.
  - 5. Insulating glass.
  - 6. Insulated spandrel panels.



- E. Glazing Schedule: List glazing types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- F. Delegated Design Submittal: For glazing indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by qualified professional engineer responsible for their preparation.
- G. Sample Warranties: For special warranties.

#### 1.8 INFORMATIONAL SUBMITTALS

- A. Forced-Entry-Resistance-Rated Certification: For each type of forced-entry-resistance-rated security glazing for tests performed by a qualified testing agency indicating compliance with performance requirements.
- B. Bullet-Resistance-Rated Performance Certification: For each type of bullet-resistance-rated security glazing for tests performed by a qualified testing agency indicating compliance with performance requirements.
- C. Preconstruction adhesion and compatibility test report.

#### 1.9 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For glazing to include in maintenance manuals.
- B. Warranties: Executed special warranties.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Maintain protective coverings on glazing to avoid exposures to abrasive substances, excessive heat, and other sources of possible deterioration.

#### 1.11 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.



## 1.12 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer or manufacturer/fabricator, as applicable, agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer or manufacturer/fabricator, as applicable, agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard. "Laminated Glass", as used in this paragraph, includes clear laminated glass and fire-protection-rated laminated ceramic glass.
1. Warranty Period: 5 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty on Tempered Glazing Units with Clear Intumescent Interlayer: Manufacturer or manufacturer/fabricator, as applicable, agrees to replace units that deteriorate within specified warranty period. Deterioration of tempered glazing units with clear intumescent interlayer is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning glass contrary to manufacturer's written instructions. Evidence of failure is air bubbles within units, or obstruction of vision by contamination or deterioration of intumescent interlayer.
1. Warranty Period: 5 years from date of Substantial Completion.
- D. Manufacturer's Special Warranty for Laminated-Glass Security Glazing: Manufacturer or manufacturer/fabricator, as applicable, agrees to replace laminated-glass security glazing units that deteriorate within specified warranty period. Deterioration of laminated glass security glazing is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass security glazing contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard. "Laminated-Glass Security Glazing", as used in this paragraph, includes clear laminated-glass security glazing and bullet-resistance-rated laminated-glass security glazing.
1. Warranty Period: 5 years from date of Substantial Completion.
- E. Manufacturer's Special Warranty for Insulating Glass: Manufacturer or manufacturer/fabricator, as applicable, agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is obstruction of vision by dust, moisture, or film on interior surfaces of glass.



1. Where laminated glass is used as a component in an insulating-glass unit, deterioration of the laminated glass itself is covered by the paragraph[s] “Manufacturer’s Special Warranty for Laminated Glass” and “Manufacturer’s Special Warranty for Laminated-Glass Security Glazing” above, and deterioration of the insulating glass due to failure of hermetic seal is covered by this paragraph “Manufacturer’s Special Warranty for Insulating Glass.”
  2. Warranty Period: 10 years from date of Substantial Completion.
- F. Manufacturer’s Special Warranty for Aluminum and Glass-Faced Insulated Spandrel Panels: Manufacturer agrees to replace insulated spandrel panels that deteriorate within specified warranty period.
1. Deterioration includes, but is not limited to, the following:
    - a. Delamination of components or other failures of bond.
    - b. Warping of components.
  2. Warranty Period: 10 years from date of Substantial Completion.
- G. Manufacturer’s Special Finish Warranty for Insulated Spandrel Panels: Manufacturer agrees to restore finishes or replace insulated spandrel panels that deteriorate within specified warranty period.
1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  2. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Source Limitations for Glazing: For each glazing type, obtain from single manufacturer.
- B. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
  1. Installed security glazing shall withstand security-related loads and forces without damage to the glazing beyond that allowed by referenced standards.



- B. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined in accordance with the IBC and ASTM E1300:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Thermal Loads: Design glazing to resist thermal stress breakage induced by differential temperature conditions and limited air circulation within individual glass lites and insulated glazing units.
- D. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- E. Security Glazing: Installed security glazing shall withstand security-related loads and forces without damage to the glazing beyond that allowed by referenced standards.
- F. Bullet-Resistance-Rated Glazing: Where bullet-resistance-rated glazing is indicated, provide glazing complying with bullet-resistance level indicated, based on testing according to UL 752.
- G. Thermal and Optical Performance Properties: Provide glazing with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
  - 1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
  - 2. For laminated-glass lites, properties are based on products of construction indicated.
  - 3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
  - 4. U-Factors: Center-of-glazing values, in accordance with NFRC 100 and based on most current non-beta version of LBL's WINDOW computer program, expressed as Btu/sq. ft. x h x deg F.
  - 5. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on most current non-beta version of LBL's WINDOW computer program.

## 2.3 GLAZING PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glazing product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. FGIA Publications: AAMA GD5G-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
  - 2. FGIA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."



3. FGIA Publication for Insulating Glass: IGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
  4. American Bird Conservancy (ABC) Publication: "Bird-Friendly Building Design."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glazing, thickness, and safety glazing standard with which glazing complies.
  - C. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name; test standard; whether glazing is permitted to be used in doors or openings; if permitted in openings, whether glazing has passed hose-stream test; whether glazing meets 450 deg F temperature-rise limitation; and fire-resistance rating in minutes.
  - D. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the IGCC.
  - E. Thickness: Where glazing thickness is indicated, it is a minimum. Provide glazing that complies with performance requirements and is not less than thickness indicated.
    1. Minimum Glass Thickness for Exterior Lites: 6 mm.
    2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
  - F. Strength: Where heat-strengthened float glass is indicated, provide heat-strengthened float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

## 2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C1036, Type I, Class 1 (clear), Quality-Q3.
- B. Low-Iron Annealed Float Glass: ASTM C1036, Type I, Class I (clear), Quality-Q3; and with visible light transmission of not less than 91 percent.
- C. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
  1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion horizontally parallel to bottom edge of glass as installed unless otherwise indicated.
  2. Clear Glass:
    - a. Type **FC**: Fully tempered clear float glass.
      - 1) Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
        - a) AGC Glass Company North America, Inc.; Clear Float.
        - b) Guardian Glass, LLC; Clear Float.



- c) Vitro Architectural Glass; Clear.
    - 2) Minimum Thickness: 6 mm.
    - 3) Safety glazing required.
  - b. Type **FCE**: Fully tempered clear float glass with low-e coating, ASTM C1376.
    - 1) Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
      - a) AGC Glass Company North America, Inc.; Energy Select 28.
      - b) Guardian Glass, LLC; SunGuard SNX 62/27 on Clear Float.
      - c) Vitro Architectural Glass; Solarban 70.
    - 2) Minimum Thickness: 6 mm.
    - 3) Safety glazing required.
3. Ultraclear (Low-Iron) Glass:
- a. Type **UF**: Ultraclear (low-iron) fully tempered float glass.
    - 1) Products: Subject to compliance with requirements, available products that may be incorporated in the Work, include, but are not limited to:
      - a) Guardian Glass, LLC; Guardian UltraClear.
      - b) Vitro Architectural Glass; Starphire Ultra-Clear.
    - 2) Minimum Thickness: 6 mm.
    - 3) Safety glazing required.
- D. Heat-Strengthened Float Glass: ASTM C1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear), Quality-Q3.
- 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion horizontally parallel to bottom edge of glass as installed unless otherwise indicated.
- E. Ceramic-Coated Spandrel Glass: ASTM C1048, Type I, Condition B, Quality-Q3.
- 1. Type **FCS**: Fully tempered clear float glass, ceramic-coated spandrel glass.
    - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated in the Work, include, but are limited to:
      - 1) Guardian Glass, LLC.
    - b. Glass: Clear float glass.



- c. Minimum Thickness: 6 mm.
- d. Coating Color: As selected by Architect from manufacturer's full range.

## 2.5 LAMINATED GLASS

- A. Laminated Glass: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
  - 1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer's written instructions.
  - 2. Interlayer Thickness: Provide thickness not less than 0.060 inch and as needed to comply with requirements.
  - 3. Interlayer Color: Clear.
  - 4. Appearance: Provide laminated glass without haze and with visual clarity and transparency indistinguishable from clear fully tempered float glass.
  - 5. Type **HCL**: Clear laminated glass (two plies of clear heat-strengthened float glass laminated).
    - a. Minimum Thickness of Each Ply: 4 mm.
    - b. Safety glazing required.

## 2.6 FIRE-PROTECTION-RATED GLAZING

- A. Fire-Protection-Rated Glazing: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on positive-pressure testing according to NFPA 257 or UL 9, including hose-stream test, and shall comply with NFPA 80.
- B. Appearance: Provide fire-protection-rated glazing without haze and with visual clarity and transparency indistinguishable from clear fully tempered float glass.
- C. Fire-Protection-Rated Tempered Glass: Fire-protection-rated tempered glass; complying with 16 CFR 1201, Category II.
  - 1. Type **FP**: Fire-protection-rated tempered glass, exempted from the hose-stream test.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
      - 1) Safti First Fire Rated Glazing Solutions; SuperLite I.
      - 2) Technical Glass Products; Fireglass 20.
      - 3) Vetrotech Saint-Gobain; Pyroswiss 20.
    - b. Rating: 20 minutes.



- c. Thickness: 6 mm.
  - d. Safety glazing required.
- D. Fire-Protection-Rated Laminated Ceramic Glazing: Laminated glass made from two plies of clear, ceramic glass; complying with 16 CFR 1201, Category II.
  - 1. Type **FPC**: Fire-protection-rated laminated ceramic glazing.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
      - 1) Safti First Fire Rated Glazing Solutions; Pyran Platinum L.
      - 2) Technical Glass Products; FireLite Plus.
    - b. Rating: 20 minutes.
    - c. Thickness: 8-9 mm.
    - d. Safety glazing required.

## 2.7 SECURITY GLAZING

- A. Laminated-Glass Security Glazing: ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation. Laminated glass made from multiple plies of uncoated, ultraclear (low-iron) float glass and complying with 16 CFR 1201, Category II.
  - 1. Type **SCL**: Clear laminated-glass security glazing.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
      - 1) Global Security Glazing; Childgard 2118.
      - 2) LTI Smart Glass, Inc.; SG5 by School Guard Glass.
      - 3) Oldcastle BuildingEnvelope, a CRH Company; ArmorGarde Plus.
    - b. Forced-Entry Resistance:
      - 1) Class 1.4 according to ASTM F1233.
      - 2) H. P. White 5-aa1 assault test-rated for not less than 12 minutes, as a continuous attack.
        - a) Withstand a minimum of 5 shots from a military-style assault rifle with a minimum caliber of 7.62 mm.
        - b) Withstand a minimum of abuse as applied by a single assailant at full force, including strikes with bricks, hammers, baseball bats, and sledgehammers.



- c. Nominal Overall Thickness: 7/16- to 9/16-inch.
  - d. Interlayer Thickness: As required for performance indicated.
  - e. Interlayer Color: Clear.
  - f. Appearance: Provide clear laminated-glass security glazing without haze and with visual clarity and transparency indistinguishable from clear fully tempered float glass.
  - g. Safety glazing required.
- B. Bullet-Resistance-Rated Laminated-Glass Security Glazing: Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation. Laminated glass made from multiple plies of uncoated, ultraclear (low-iron) float glass; and complying with 16 CFR 1201, Category II.
- 1. Type **BCL**: Bullet-resistance-rated clear laminated-glass security glazing.
    - a. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to:
      - 1) California Glass Bending Corp.; Bullet-Resistant Level I-All Glass.
      - 2) Global Security Glazing; Bullet Resistant (All Glass) BR-113.
      - 3) Oldcastle BuildingEnvelope, a CRH Company; ArmorResist 211000.
    - b. Bullet-Resistance: Level 1 according to UL 752.
    - c. Thickness: As required for performance indicated.
    - d. Interlayer Color: Clear.
    - e. Appearance: Provide bullet-resistance-rated clear laminated-glass security glazing without haze and with visual clarity and transparency indistinguishable from clear fully tempered float glass.
    - f. Safety glazing required.

## 2.8 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified in accordance with ASTM E2190.
  - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
  - 2. Perimeter Spacer: Manufacturer's standard spacer material and construction.
  - 3. Desiccant: Molecular sieve or silica gel, or a blend of both.
  - 4. Interspace Content: Argon (90 percent)/air (10 percent) mix.



B. Insulating Security Glass:

1. Type **FCE/SCL**: Low-e-coated, laminated-glass security insulating glass.
  - a. Overall Unit Thickness: <Insert thickness> inch.
  - b. Outdoor Lite: Fully tempered clear float glass with low-e coating, Type FCE.
  - c. Low-E Coating: Sputtered on second surface.
  - d. Interspace Content: Argon.
  - e. Indoor Lite: Clear laminated-glass security glazing, Type SCL.
  - f. Glass Unit Performance Values:
    - 1) Winter Nighttime U-Factor: 0.24 Btu/sq. ft. x h x deg F maximum.
    - 2) SHGC: 0.28 maximum.
    - 3) Visible Light Transmittance: 57 percent minimum.

2.9 INSULATED SPANDREL PANELS

- A. Insulated Spandrel Panels: Laminated, rabbeted, glass-faced flat panels with no deviations in plane exceeding 0.8 percent of panel dimension in width or length.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Mapes Industries, Inc.; Mapes-R+ 8-ply, or comparable product, including, but not limited to, products by:
    - a. Nudo Products.
  2. Overall Panel Thickness: 2-inch (including 1-inch glazing leg).
  3. Exterior Skin: Heat-strengthened clear float glass, ceramic-coated spandrel glass.
    - a. Thickness: 0.25-inch.
    - b. Opaque Coating Location: Second surface.
    - c. Coating Color: As selected by Architect from manufacturer's full range.
  4. Glazing Leg Core: Same as thermal insulation core, with smooth aluminum skin.
  5. Thermal Insulation Core: Manufacturer's standard rigid, closed-cell, polyisocyanurate board.
  6. Interior Skin: Aluminum.
    - a. Thickness: 0.032-inch.
    - b. Finish: Clear anodic finish.



- c. Texture: Smooth.
  - d. Backing Sheet: 1/2-inch-thick, gypsum board with proprietary fire-resistance-rated core.
- 7. Overall U-factor: 0.24 Btu/sq. ft. x h x deg F maximum.
- 8. Surface Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - a. Flame Spread Index: 25 or less.
  - b. Smoke-Developed Index: 450 or less.

## 2.10 GLAZING SEALANTS

### A. General:

- 1. Compatibility: Compatible with one another and with other materials they contact, including glazing products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- 2. Suitability: Comply with sealant and glazing manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
- 3. Sealant shall have a VOC content of 250 g/L or less.
- 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range of industry colors.

## 2.11 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glazing manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:
  - 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  - 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
  - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as primary sealant.
  - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.



## 2.12 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, including security applications, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks:
  - 1. Elastomeric material with Shore A durometer hardness of 85, plus or minus 5.
  - 2. Type recommended in writing by sealant or glazing manufacturer.
- D. Spacers:
  - 1. Elastomeric blocks or continuous extrusions of hardness required by glazing manufacturer to maintain glazing lites in place for installation indicated.
  - 2. Type recommended in writing by sealant or glazing manufacturer.
- E. Edge Blocks:
  - 1. Elastomeric material with Shore A durometer hardness per manufacturer's written instructions.
  - 2. Type recommended in writing by sealant or glazing manufacturer.
- F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.13 GLAZING ACCESSORIES FOR FIRE-RATED GLAZING PRODUCTS

- A. Provide glazing gaskets, glazing sealants, glazing tapes, setting blocks, spacers, edge blocks, and other glazing accessories that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-rated glazing products with which products are used for applications and fire ratings indicated.
- B. Glazing Sealants for Fire-Rated Glazing Products: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 50, Use NT. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated.
  - 1. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- C. Perimeter Insulation for Fire-Rated Glazing: Product that is approved by testing agency that listed and labeled fire-rated glazing product with which it is used for application and fire rating indicated.



## 2.14 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
  - 1. Allow for thermal movements from ambient and surface temperature changes acting on framing members and glazing components.
    - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

## 2.15 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep systems.
  - 3. Minimum required face and edge clearances.
  - 4. Minimum required bite.
  - 5. Effective sealing between joints of framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

## 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glazing immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.



- C. For fire-rated glazing units, examine glazing units to locate fire side and protected side. Label or mark units as needed so that fire side and protected side are readily identifiable. Do not use materials that leave visible marks in the completed Work.
- D. For laminated-glass security glazing, examine glazing units to locate attack or threat side and protected side. Label or mark units as needed so that attack or threat side and protected side are readily identifiable. Do not leave visible marks in the completed Work.

### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glazing, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glazing edges from damage during handling and installation. Remove damaged glazing from Project site and legally dispose of off Project site. Damaged glazing includes glazing with edge damage or other imperfections that, when installed, could weaken glazing, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glazing manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glazing manufacturers for installing glazing lites.
- F. Provide spacers for glazing lites where length plus width is larger than 50 inches.
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glazing. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch-minimum bite of spacers on glazing and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glazing lites from moving sideways in glazing channel, as recommended in writing by glazing manufacturer and in accordance with requirements in referenced glazing publications.
- H. Set glazing lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glazing lites with proper orientation so that coatings face exterior or interior as specified.
- J. For fire-resistant glazing, set glass lites with proper orientation so that surfaces face fire side or protected side as specified.



- K. For security glazing, set glazing lites with proper orientation so that surfaces face attack or threat side or protected side as specified.
- L. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- M. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended in writing by gasket manufacturer.

### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glazing, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glazing lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glazing and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glazing lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.



- D. Installation with Pressure-Glazing Stops: Center glazing lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

### 3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glazing lites and glazing stops to maintain glazing face clearances and to prevent sealant from extruding into glazing channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glazing and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glazing.

### 3.7 CLEANING AND PROTECTION

- A. Immediately after installation, remove nonpermanent labels and clean surfaces.
- B. Protect glazing from contact with contaminating substances resulting from construction operations. Examine glazing surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
  - 1. If, despite such protection, contaminating substances do contact with glazing, remove substances immediately as recommended in writing by glazing manufacturer. Remove and replace glazing that cannot be cleaned without damage to coatings.
- C. Remove and replace glazing that is damaged during construction period.
- D. Wash glazing on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glazing as recommended in writing by glazing manufacturer.

END OF SECTION 08 80 00



## **SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Non-load-bearing steel framing systems for interior partitions.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Steel studs and tracks.
  - 2. Hat-shaped, rigid furring channels.
  - 3. Z-shaped furring.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below, otherwise submit full Product Data for the following:
  - 1. Grid suspension system for gypsum board ceilings.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.

#### 1.6 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association or the Steel Framing Industry Association.



## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

### 2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C645 requirements for steel unless otherwise indicated.
  - 2. Protective Coating: ASTM A653/A653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C645.
  - 1. Steel Studs and Tracks:
    - a. Minimum Base-Steel Thickness: 0.0329 inch.
    - b. Depth: As indicated on Drawings.
    - c. Minimum Track Leg Length: 1-1/4 inches.
- C. Hat-Shaped, Rigid Furring Channels: ASTM C645.
  - 1. Minimum Base-Steel Thickness: 0.0329 inch.
  - 2. Depth: 7/8 inch.
- D. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-steel thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

### 2.3 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.3 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
  - 2. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.



1. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs for opening widths less than 4 feet; install two tracks and stud head member for opening widths 4 feet and wider.
  - a. Install two studs at each jamb unless otherwise indicated.
  - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
2. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
3. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

E. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

F. Z-Shaped Furring Members:

1. Erect insulation, specified in Division 07 Section "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced 24 inches o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.4 PRE-ENCLOSURE REVIEW

- A. Notify Architect prior to installing enclosing construction to allow observation of non-structural metal framing installation, including supplementary framing and blocking.

END OF SECTION 09 22 16



## **SECTION 09 29 00 - GYPSUM BOARD**

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Interior gypsum board.
  - 2. Tile backing panels.

#### 1.3 SUBMITTALS, GENERAL

- A. General: Submit all action submittals required by this Section concurrently.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Interior trim.
  - 2. Joint treatment materials.
  - 3. Sound-attenuation blankets.
- B. As-Specified Data: If the product to be incorporated into Project is a specified by manufacturer name and product designation in Part 2 of this Specification Section, submit “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below; otherwise submit full Product Data for the following:
  - 1. Gypsum board, Type X.
  - 2. Cementitious backer units.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.



## 1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

### 2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

### 2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C1396/C1396M.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. CertainTeed Gypsum, Saint-Gobain; Type X Gypsum Board.
    - b. National Gypsum Company; Gold Bond Brand Fire-Shield Gypsum Board.
    - c. USG Corporation; Sheetrock Brand Firecode X Panels.
  - 2. Thickness: 5/8 inch.
  - 3. Long Edges: Tapered.



## 2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
  - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
  - 2. Shapes:
    - a. Cornerbead.
    - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    - c. L-Bead: L-shaped; exposed long flange receives joint compound.

## 2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
  - 1. Interior Gypsum Board: Paper.
  - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
  - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
  - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
  - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
  - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
  - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Tile Backing Panels:
  - 1. Cementitious Backer Units: As recommended by backer unit manufacturer.

## 2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
  - 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
  - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.



1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- D. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."
- E. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PRE-ENCLOSURE REVIEW

- A. Notify Architect prior to applying panels to allow observation of framing installation, including supplementary framing and blocking.

### 3.3 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.



1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
  2. Fit gypsum panels around ducts, pipes, and conduits.
  3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Stud Partition Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

### 3.4 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
1. Type X: All surfaces unless otherwise indicated.
- B. Single-Layer Application:
1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
  2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
    - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
  3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
  4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.



### 3.5 APPLYING TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

### 3.6 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
  - 1. Cornerbead: Use at outside corners unless otherwise indicated.
  - 2. LC-Bead: Use at exposed panel edges.
  - 3. L-Bead: Use where indicated.
  - 4. Structural Laminate Corner System: Use where indicated.
- D. Aluminum Trim: Install in locations indicated on Drawings.

### 3.7 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
  - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
  - 2. Level 4: At panel surfaces that will be exposed to view .
- E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

### 3.8 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Restore surfaces stained, marred, or otherwise damaged during drywall application.



- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09 29 00



## **SECTION 09 30 19 – PORCELAIN TILING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Porcelain tile.
  - 2. Metal edge strips.

#### **1.3 DEFINITIONS**

- A. General: Definitions in the current ANSI A108 series of tile installation standards and in current ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in "American National Standard Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
  - 1. Show base details.
  - 2. Show locations of floor drains and sloped slabs.
  - 3. Show threshold locations and types.
- C. Samples for Verification and Initial Color Selection:
  - 1. Full-size units of each type and composition of tile and for each color and finish required.
  - 2. Full-size units of each type of trim and accessory for each color and finish required.



3. Stone thresholds in 6-inch lengths.
4. Metal edge strips in 6-inch lengths.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- C. Product Certificates: For each type of product, signed by product manufacturer.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
  2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

#### 1.7 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain tile of each type and color or finish from one source or producer.
  1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following product specified in this Section from a single manufacturer for each product:
  1. Metal edge strips.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained, and contamination can be avoided.



- D. Store liquid materials in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

## 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with most current ANSI A137.1 for types, compositions, and other characteristics indicated.
  - 1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with most current ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tiles units taken from one package show same range in colors as those taken from other packages and match approved Samples.

### 2.2 TILE PRODUCTS

- A. Tile Type PT: Color body porcelain tile.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile "Portfolio Vivid" color body porcelain tile or comparable product by one of the following:
    - a. American Olean Inc.
  - 2. Composition: Porcelain.
  - 3. Face Size: 11-5/8 by 23-5/8 inches
  - 4. Thickness: 5/16"
  - 5. Face: Plain with square edges



6. Finish: Matte.
7. Tile Color and Pattern: As selected by Architect from manufacturer's full range. Provide up to two colors per school.
8. Grout Color: As selected by Architect from manufacturer's full range.
9. Leveling clips- for tile sizes over 12" x 12" use required leveling clips similar to "Raimondi Leveling System Clips". Including pliers for wall and floor applications, breakaway clips, and wedges.

## 2.3 SETTING MATERIALS

- A. Latex-Portland Cement- Large and heavy Tile mortar: LHT mortar: ANSI A118.4. ANSI 118.5
  1. Basis-of-Design Product: Subject to compliance with requirements, provide MAPEI Corporation; UltraFlex LFT System or comparable product by one of the following:
    - a. Laticrete International, Inc.- 4XLT
  2. Provide prepackaged, dry-mortar mix containing dry, re-dispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
  3. For wall applications, provide mortar that complies with requirements for non-sagging mortar in addition to the other requirements in ANSI A118.4.

## 2.4 GROUT MATERIALS

- A. Water-Cleanable Epoxy Grout: ANSI A118.3
  1. Basis-of-Design Product: Subject to compliance with requirements, provide MAPEI Corporation; Kerapoxy or comparable product by one of the following:
    - a. Laticrete Spectralock Pro Premium Grout.

## 2.5 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
  1. Laticrete NXT Surface Prep Line.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for wall applications; stainless-steel exposed-edge material.



1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products as shown but not limited to all associated required accessories, that may be incorporated into the Work include, but are not limited to, the following:
  - a. Schluter Systems L.P.
- C. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
  1. Laticrete Stonetech Stone and Tile Cleaner.

## 2.6 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
  1. Verify that substrates for setting tile are firm, dry, clean, and free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with patching and leveling with suitable products made to be trowelable for leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.



- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not, factory blended, either return to manufacturer or blend tiles at Project site before installing.

### 3.3 TILE INSTALLATION

- A. Comply with current TCNA's "Handbook for Ceramic Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the current ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in current TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
  - 1. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
  - 2. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
  - 1. Porcelain Tile: 1/4 inch
- G. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- H. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated and as per all current TCNA, EJ171 standards. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
  - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them at same width and as current TCNA EJ171.
- I. Metal Edge Strips: Install at locations indicated.



### 3.4 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove epoxy grout residue from tile as soon as possible.
  - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
- B. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

### 3.5 INTERIOR PORCELAIN TILE INSTALLATION SCHEDULE

- A. Interior Wall Installations:
  - 1. Tile Installation W211: Cement mortar bed (thickset) bonded to substrate; TCA W211 and ANSI A108.1C.
    - a. Bond Coat Mortar for Wet-Set Method: Latex-portland cement mortar.
    - b. Thin-Set Mortar for Cured-Bed Method: Latex-portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
  - 2. Tile Installation W221: Cement mortar bed (thickset) on metal lath; TCA W221 and ANSI A108.1C.
    - a. Bond Coat Mortar for Wet-Set Method: Latex-portland cement mortar.
    - b. Thin-Set Mortar for Cured-Bed Method: Latex-portland cement mortar.
    - c. Grout: Water-cleanable epoxy grout.
  - 3. Tile Installation W244: Thin-set mortar on cementitious backer units; TCA W244.
    - a. Thin-Set Mortar: Latex-portland cement mortar.
    - b. Grout: Water-cleanable epoxy grout.

END OF SECTION 09 30 19



## **SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

#### **1.3 DEFINITIONS**

- A. CAC: Ceiling Attenuation Class.
- B. LR: Light Reflectance.
- C. NRC: Noise Reduction Coefficient.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

#### **1.5 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.6 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Attachment devices.
  - 2. Wire hangers, braces and ties.
  - 3. Hanger rods.
  - 4. Flat hangers.
  - 5. Angle hangers.
  - 6. Hold-down clips.
  - 7. Impact clips.
  - 8. Seismic clips.
  - 9. Seismic stabilizer bars.
  - 10. Seismic struts.
  - 11. Roll-formed, sheet-metal edge moldings and trim.



- B. **As-Specified Data:** If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the “**As-Specified Verification Form**” (attached to Division 01 Section “Submittal Procedures”) for each item listed below; otherwise submit full Product Data for the following:
1. Acoustical panels for ceiling types A1, A2 and A3.
  2. Metal suspension system for ceiling types A1, A2 and A3.
  3. Extruded-aluminum or roll-formed, steel sheet metal edge moldings and trim.
- C. **Sustainable Design Submittals:**
1. Product Data: For recycled content.
- D. **Samples for Verification:** If proposing products other than those specifically named in Part 2 of this Section, for each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
1. Acoustical Panels: Set of 6-inch-square Samples of each type, color, pattern, and texture.
  2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.

#### 1.7 INFORMATIONAL SUBMITTALS

- A. **Coordination Drawings:** Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
1. Ceiling suspension-system members.
  2. Structural members to which suspension systems will be attached.
  3. Method of attaching hangers to building structure.
  4. Items penetrating finished ceiling and ceiling-mounted items including the following:
    - a. Lighting fixtures.
    - b. Diffusers.
    - c. Grilles.
    - d. Speakers.
    - e. Sprinklers.
    - f. Access panels.
    - g. Detectors.

#### 1.8 CLOSEOUT SUBMITTALS

- A. **Maintenance Data:** For finishes to include in maintenance manuals.



## 1.9 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed of each acoustical panel type.
  - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed of each metal suspension system type.
  - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.
  - 4. Impact Clips: Equal to 2 percent of quantity installed.

## 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

## 1.11 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Source Limitations: Match each type of acoustical ceiling panel with a supporting suspension system of the same manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Class A according to ASTM E1264.
  - 2. Smoke-Developed Index: 50 or less.



## 2.3 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- B. Color: White, unless otherwise indicated.
- C. Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D3273, ASTM D3274, or ASTM G21 and evaluated according to ASTM D3274 or ASTM G21.

## 2.4 STANDARD ACOUSTICAL PANELS FOR WIDE-FACE SUSPENSION SYSTEMS

- A. Acoustical Panels for Ceiling Type A2
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
    - a. Armstrong World Industries, Inc.; School Zone Fine Fissured 1713.
    - b. CertainTeed Ceilings; Fine Fissured High NRC HHF-457 HNRC.
    - c. USG Corporation; Radar High-NRC Panels 22111.
  - 2. Type and Form: Type III, mineral base with painted finish; Form 2, water felted.
  - 3. Pattern: As indicated by manufacturer's designation.
  - 4. Modular Size: 24 by 24 inches.
  - 5. Thickness: 3/4 inch.
  - 6. Edge Detail: Square.
  - 7. NRC: Not less than 0.70.
  - 8. CAC: Not less than 35.
  - 9. LR: Not less than 0.80.
  - 10. Recycled Content: Not less than 40 percent.

## 2.5 SPECIALTY ACOUSTICAL PANELS FOR WIDE-FACE SUSPENSION SYSTEMS

- A. Acoustical Panels for Ceiling Type A1:
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
    - a. Armstrong World Industries, Inc.; Kitchen Zone 673.



- b.     USG Corporation; Kitchen Lay-In Panels 3210.
  - 2.     Type and Form: Type IX, mineral-base panels with scrubbable pigmented or clear finish; Form 2, water felted.
  - 3.     Pattern: As indicated by manufacturer's designation.
  - 4.     Modular Size: 24 by 24 inches.
  - 5.     Thickness: 5/8 inch.
  - 6.     Edge Detail: Square.
  - 7.     CAC: Not less than 30.
  - 8.     LR: Not less than 0.85.
  - 9.     Recycled Content: Not less than 20 percent.
- 2.6     CEMENTITIOUS WOOD FIBER ACOUSTICAL PANELS FOR WIDE-FACE SUSPENSION SYSTEMS
- A.     Acoustical Panels for Ceiling Type A3:
- 1.     Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
    - a.     Armstrong World Industries, Inc.; Tectum Lay-In 8184T10.
  - 2.     Type and Form: Type XIV, excelsior bonded with inorganic binders; Form 1, no backing.
  - 3.     Pattern: As indicated by manufacturer's designation.
  - 4.     Modular Size: 24 by 24 inches.
  - 5.     Thickness: 1 inch.
  - 6.     Edge Detail: Square.
  - 7.     NRC: Not less than 0.40.
  - 8.     LR: Not less than 0.75.
- 2.7     METAL SUSPENSION SYSTEMS, GENERAL
- A.     Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.



## 2.8 WIDE-FACE METAL SUSPENSION SYSTEMS

### A. Wide-Face Suspension System for Ceiling Types A2 and A3:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Armstrong World Industries, Inc.; Prelude XL 15/16-inch Exposed Tee System.
  - b. CertainTeed Ceilings; 15/16-inch EZ Stab Classic System.
  - c. USG Corporation; Donn Brand DX Acoustical Suspension System.
2. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
3. Structural Classification: Intermediate-duty system.
4. End Condition of Cross Runners: Override (stepped) type.
5. Face Design: Flat, flush.
6. Cap Material: Cold-rolled steel.
7. Cap Finish: Painted white.

### B. Wide-Face Suspension System for Ceiling Type A1:

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Armstrong World Industries, Inc.; Prelude XL 15/16-inch Exposed Tee System (with Aluminum Caps).
  - b. CertainTeed Ceilings; 15/16-inch EZ Stab Classic Aluminum Capped System.
  - c. USG Corporation; Donn Brand DXLA 15/16-inch Acoustical Suspension System.
2. Wide-Face, Aluminum-Capped, Double-Web, Hot-Dip Galvanized, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G30 coating designation or better; with prefinished, 15/16-inch-wide aluminum caps on flanges.
3. Structural Classification: Intermediate-duty system.
4. Face Design: Flat, flush.
5. Cap Finish: Painted white.

## 2.9 ACCESSORIES

- ### A. Attachment Devices:
- Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.



- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
  2. Stainless-Steel Wire: ASTM A580/A580M, Type 304, nonmagnetic.
  3. Nickel-Copper-Alloy Wire: ASTM B164, nickel-copper-alloy UNS No. N04400.
  4. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch- diameter wire.
- C. Hold-Down Clips: Manufacturer's standard hold-down.

## 2.10 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
  2. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
  3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
- B. Extruded-Aluminum or Roll-Formed Steel Sheet-Metal Edge Moldings and Trim: Where indicated for ceiling clouds or fasciae, provide manufacturer's extruded-aluminum or roll-formed steel sheet-metal edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Armstrong World Industries, Inc.; Axiom Classic Trim.
    - b. USG Corporation; Compasso Suspension Trim.
  2. Baked-Enamel or Powder-Coat Finish: Minimum dry film thickness of 1.5 mils. Comply with ASTM C635/C635M and coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

## 2.11 ACOUSTICAL SEALANT

- A. Acoustical Sealant: As specified in Division 07 Section " Joint Sealants."



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Lay out openings for penetrations centered on the penetrating items.

### 3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C636/C636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
  - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
  - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.



5. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
  9. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
  2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
  2. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.
    - a. Hold-Down Clips: Space 24 inches o.c. on all cross runners.

### 3.4 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
1. Periodic inspection during the installation of suspended ceiling grids according to ASCE/SEI 7.
- B. Acoustical panel ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.



### 3.5 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and restored to permanently eliminate evidence of damage.

END OF SECTION 09 51 13



**SECTION 09 65 13 - RESILIENT BASE AND ACCESSORIES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Resilient base.
  - 2. Resilient molding accessories.

**1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) required by this Section concurrently.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Resilient base: Rubber RB.
  - 2. Trowelable leveling and patching compounds.
  - 3. Concrete slab primer.
  - 4. Adhesives.
- B. Samples for Verification and Initial Color Selection:
  - 1. For each type of product indicated, in manufacturer's standard-size Samples but not less than 2-1/2 inches long, of each resilient product color, texture, and pattern required.

**1.5 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.



## 1.6 QUALITY ASSURANCE

- A. Source Limitations for Resilient Base and Accessories: Obtain each type of resilient base and accessories from a single source with resources to provide materials of consistent quality in appearance and physical properties.
- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 55 deg F or more than 90 deg F.

## 1.8 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 90 deg F, in spaces to receive resilient products during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 90 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

## PART 2 - PRODUCTS

### 2.1 RESILIENT BASE: RUBBER RB

- A. Resilient Base:
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
    - a. Mannington Commercial; Premium Rubber Edge.
    - b. Johnsonite; Rubber Wall Base.
    - c. Roppe Corporation, USA; Pinnacle Series Rubber Wall Base



- B. Resilient Base Standard: ASTM F 1861.
  - 1. Material Requirement: Type TP (rubber, thermoplastic).
  - 2. Manufacturing Method: Group I (solid, homogeneous).
  - 3. Style: Cove (base with toe).
- C. Minimum Thickness: 0.125 inch.
- D. Height: 4 inches, 6 inches at John G Borden Middle School Auditorium and locations indicated on drawings.
- E. Lengths: Coils in manufacturer's standard length, not less than 100 feet.
- F. Outside Corners: Job formed.
- G. Inside Corners: Job formed.
- H. Colors and Patterns: As selected by Architect from full range of industry colors.

## 2.2 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
  - 1. Basis-of-Design Products: Subject to compliance with requirements, provide the following Ardex product or a comparable product:
    - a. Portland Cement-Based Flash Patching and Skim Coating: SD-F Feather Finish.
    - b. Portland Cement-Based Patching: SD-P Insta Patch.
    - c. Portland Cement-Based Self-Leveling Underlayment: K-10/K-60 Self-Leveling Underlayment Concrete.
- B. Concrete Slab Primer: Non-staining type recommended by resilient accessories manufacturer.
- C. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
  - 1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Treads and Accessories: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
  - 4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
    - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.
  - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.



- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.

### 3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners- using manufactures approved methods and tools:
  - 1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
  - 2. Inside Corners: Use straight pieces of maximum lengths possible. Use scribing and cutting measures approved by base manufacturer. Inside corners that are not scribed to fit will be rejected.
  - 3. Use Crane #532 top-set gouger tool for all required for tight wrap and curved corners.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.
  - 4. Do not wash floor until after the period recommended by manufacturer.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products until Substantial Completion.

END OF SECTION 09 65 13



## **SECTION 09 65 19 - RESILIENT TILE FLOORING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Luxury vinyl floor tile
  - 2. Vinyl composition floor tile.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Luxury vinyl tile LVT
  - 2. Vinyl composition floor tile VCT1.
  - 3. Trowelable leveling and patching compounds.
  - 4. Concrete slab primer.
  - 5. Adhesives.
  - 6. Floor polish.
- B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
  - 1. Show details of patterns.
  - 2. Show base details.
  - 3. Show locations of divider strips, control and expansion joints.
  - 4. Show locations of floor drains and sloped slabs.
  - 5. Show threshold locations and types.
- C. Samples for Verification and Initial Color Selection: Full-size units of each color and pattern of floor tile required.



## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation indicated.
  - 1. Engage an installer who employs workers for this Project who are trained or certified by manufacturer for installation techniques required.
- B. Source Limitations for Resilient Tile: Obtain each type of resilient tile from a single source with resources to provide materials of consistent quality in appearance and physical properties.
- C. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Build mockups for floor tile including accessories.
    - a. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Architect.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 55 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

## 1.7 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 90 deg F, in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 90 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.



## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

### 2.2 HIGH PERFORMANCE LUXURY VINYL TILE: LVT

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Interface: Level Set Collection, Natural Woodgrains.
- B. Tile Standard: ASTM F 1700.
  - 1. Class: Class III, printed film vinyl tile.
  - 2. Type: Type B, embossed surface.
- C. Thickness: 4.5mm.
- D. Size: 25cm x 1 m.
- E. Colors and Patterns: As selected by Architect from full range of industry colors, up to 4 colors per building.

### 2.3 VINYL COMPOSITION FLOOR TILE: VCT1

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Field Tile:
    - a. Armstrong World Industries, Inc.; Standard Excelon Imperial Texture (including Imperial Texture Classics) and Standard Excelon MultiColor.
    - b. Johnsonite Flooring – the Azrock collection, (including standard, textile and solids collections).
  - 2. Accent Tile 30%:
    - a. Armstrong World Industries, Inc.; Standard Excelon Imperial Texture (including Imperial Texture Classics), Standard Excelon MultiColor, and Standard Excelon Rave.
    - b. Johnsonite Flooring – the Azrock collection, (including standard, textile and solids collections).
- B. Tile Standard: ASTM F 1066, Class 2, through-pattern tile.



- C. Wearing Surface: Smooth.
- D. Thickness: 0.125 inch, 1/8inch.
- E. Size: 12 by 12 inches.
- F. Colors and Patterns: As selected by Architect from full range of industry colors.
  - 1. Provide accent tile equal to 30 percent of total vinyl composition floor tile area, with the remainder as field tile.

## 2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
  - 1. Basis-of-Design Products: Subject to compliance with requirements, provide the following Ardex product or a comparable product:
    - a. Portland Cement-Based Flash Patching and Skim Coating: SD-F Feather Finish.
    - b. Portland Cement-Based Self-Leveling Underlayment: K-10/K60 Self-Leveling Underlayment Concrete.
- B. Concrete Slab Primer: Non-staining type recommended by resilient tile flooring manufacturer.
- C. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
  - 1. Adhesives shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
    - a. VCT Adhesives: Not more than 50 g/L.
    - b. Rubber Floor Adhesives: Not more than 60 g/L.
  - 2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.



- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
  - 4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
      - 1) At a minimum, test concrete substrates in at least 3 locations in separate parts of the floor for applications of 2000 square feet or less; provide one additional test location for each additional 1000 square feet, or fraction thereof.
    - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.
- C. Wood Subfloors:
  - 1. Verify underlayment surface is free of surface irregularities and substances with potential to interfere with adhesive bond, show through surface, or stain tile.
- D. Existing Floors: Condition of existing subfloor is unknown prior to removal of existing flooring. If, after removal of existing flooring, subfloor requires leveling, patching, or filling, notify Architect in writing.
  - 1. Asbestos Abatement Areas: In areas where removal of existing flooring is included in asbestos abatement procedures, coordinate with entity responsible for abatement to ensure patching and repair is compatible with requirements for installation of resilient tile flooring.



- E. Comply with resilient tile manufacturer's written instructions to prepare substrates.
  - 1. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
  - 2. Ensure patching and repair materials are compatible with resilient tile.
  - 3. Levelness Tolerances: Apply patching and repair materials to provide levelness of floor substrate within 1/4 inch in 10 feet, unless more stringent levelness is recommended or required by resilient tile manufacturer.
  - 4. Flash Patching and Skim Coating: Apply flash patching material to areas with 1/8 inch or less depression.
  - 5. Patching: Apply patching material to areas with 1/8 inch or greater depression.
  - 6. Self-Leveling Underlayment: Apply self-leveling material to areas where flash patching and patching described above cannot provide smooth, level surface acceptable to receive resilient tile flooring.
- F. Do not install floor tiles until they are same temperature as space where they are to be installed.
  - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- G. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.

### 3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
  - 1. Lay tiles in pattern indicated.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles as follows: 12" x 12"
    - a. Field Tile: With grain running in one direction in pattern of colors and sizes indicated.
    - b. Accent Tile: With grain running in one direction in pattern of colors and sizes indicated.



2. Lay tiles as follows: 12" x 24"
  - a. Field Tile: With grain running in one direction or pattern of colors and sizes indicated.
  - b. Accent Tile: With grain running in one direction or pattern of colors and sizes indicated.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
  1. Cut rubber floor tile using water-jet cut method only. Template cuts are prohibited.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, non-staining marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Apply concrete slab primer, if recommended by resilient tile manufacturer, prior to applying adhesive. Apply according to manufacturer's written instructions.
- I. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

### 3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
  1. Remove adhesive and other blemishes from exposed surfaces.
  2. Sweep and vacuum surfaces thoroughly.
  3. Damp-mop surfaces to remove marks and soil.
  4. Do not wash floor until after the period recommended by resilient tile manufacturer.
- C. Protect floor tile products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.
- E. Cover floor tile until Substantial Completion.



F. Perform the following operations in each area of Project upon completion of floor installation and as recommended by manufacturer.

1. Vinyl Composition Floor Tile:

- a. Scrub floor with a neutral detergent solution at 4 to 6 oz per gallon. Scrub floor using pads or brushes as recommended by vinyl composition floor tile manufacturer.
- b. Use stripping solutions at badly soiled or scratched areas, as recommended by vinyl composition floor tile manufacturer.
- c. Thoroughly rinse floor, wet vacuum and dry floor. Floor must be free from all dust, dirt and any particles that may become lodged in final polish application.
- d. Apply five coats of commercial floor polish. Apply each coat as recommended by product manufacturer.

END OF SECTION 09 65 19



## **SECTION 09 66 23 - RESINOUS MATRIX TERRAZZO FLOORING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Epoxy-resin matrix terrazzo base - Precast.

#### **1.3 DEFINITIONS**

- A. Aggregate: Marble, Glass and Granite chips.

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Epoxy- resin matrix terrazzo base- precast.
  - 2. Joint compound.
  - 3. Resinous matrix terrazzo cleaner.
  - 4. Sealer.
- B. Shop Drawings: Submit set of drawings showing complete floor patterns in all areas indicated on Drawings to receive terrazzo. Submit drawings for Architect review prior to starting installation. Shop drawings are to including but not limited to:
  - 1. Floor plans showing all patterns, precast base locations and details.
  - 2. Photocopies of Tetra Tech documentation not acceptable.
  - 3. Precast terrazzo jointing and edge configurations.
- C. Samples for Verification and Initial Color Selection: For each type, material, color, and pattern of terrazzo and accessory required showing the full range of color, texture, and pattern variations expected. Label each terrazzo sample to identify manufacturer's matrix color and aggregate types, sizes, and proportions. Prepare Samples of same thickness and from same material to be used for the Work, in size indicated below:
  - 1. Precast Terrazzo Base: 6-inch-square Samples to match existing



## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Material Certificates: For each type of terrazzo material or product, from manufacturer.
- C. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.

## 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For terrazzo to include in maintenance manuals.

## 1.8 QUALITY ASSURANCE

- A. Installer Qualifications:
  - 1. Engage an installer who is a contractor member of NTMA.
  - 2. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products.
- B. Source Limitations: Obtain primary terrazzo materials from single source from single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.
- C. Source Limitations for Aggregates: Obtain each color, grade, type, and variety of granular materials from single source with resources to provide materials of consistent quality in appearance and physical properties.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

## 1.10 FIELD CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting terrazzo installation.
- B. Field Measurements: Verify actual dimensions of construction contiguous with precast terrazzo by field measurements before fabrication.
- C. Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during terrazzo installation.



- D. Close spaces to traffic during terrazzo application and for not less than 24 hours after application unless manufacturer recommends a longer period.
- E. Control and collect water and dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. NTMA Standards: Comply with NTMA's "Terrazzo Specifications and Design Guide" and with written recommendations for terrazzo type indicated unless more stringent requirements are specified.

### 2.2 EPOXY-RESIN MATRIX TERRAZZO BASE- PRECAST

- A. Epoxy Resin Matrix Terrazzo Base- Precast: Minimum 3/8-inch-thick, reinforced epoxy resin matrix terrazzo base- precast cast in maximum lengths possible, but not less than 36 inches. Comply with NTMA's written recommendations for fabricating precast terrazzo base units in sizes and profiles indicated.
  - 1. Type: Refer to details.
  - 2. Top Edge: Radius edge with polished top surface.
  - 3. Outside Corner Units: With finished returned edges at outside corner.
  - 4. Aggregate and Matrix colors to be selected by architect. Matrix color to be selected from entire line of Sherwin Williams colors.
- B. Anchoring Devices:
  - 1. Precast Epoxy Resin Matrix Terrazzo: Provide mechanical anchoring devices as recommended by fabricator for proper anchorage and support of units for conditions of installation and support.
- C. Patching and Fill Material: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- D. Joint Compound: Terrazzo manufacturer's resinous product approved and recommended by manufacturer for application indicated.
- E. Resinous Matrix Terrazzo Cleaner: Chemically neutral cleaner with pH factor between 7 and 10 that is biodegradable, phosphate free, and recommended by sealer manufacturer for use on terrazzo type indicated.



## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Clean substrates of substances, including oil, grease, and curing compounds, that might impair terrazzo bond. Provide clean, dry, and neutral substrate for terrazzo application.
- B. Protect other work from water and dust generated by grinding operations. Control water and dust to comply with environmental protection regulations.
  - 1. Erect and maintain temporary enclosures and other suitable methods to limit water damage and dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.

### 3.3 EPOXY RESIN MATRIX TERRAZZO INSTALLATION BASE

- A. Install epoxy resin matrix terrazzo base-precaster, treads-precaster using method recommended by NTMA and manufacturer unless otherwise indicated.
- B. Do not install base-precaster, or treads-precaster that are chipped, cracked, discolored, or not properly finished.
- C. Seal joints between base-precaster, or treads-precaster with joint compound matching precast terrazzo matrix.

### 3.4 REPAIR

- A. Cut out and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Architect.

### 3.5 CLEANING AND PROTECTION

- A. Cleaning:
  - 1. Remove grinding dust from installation and adjacent areas.
  - 2. Wash surfaces with cleaner according to NTMA's written recommendations and manufacturer's written instructions; rinse surfaces with water and allow them to dry thoroughly.



- B. Sealing:
1. Seal surfaces according to NTMA's written recommendations.
  2. Apply sealer according to sealer manufacturer's written instructions.
- C. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure that terrazzo is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 66 23



## **SECTION 09 68 13 - TILE CARPETING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Carpet tile.
- B. Entry way carpet tile system.

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
  - 1. Carpet tile.
  - 2. Entry way carpet tile
  - 3. Trowelable leveling and patching compounds.
  - 4. Adhesives.
  - 5. Metal edge/transition strip.
- B. Shop Drawings: Show the following:
  - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
  - 2. Carpet type, color, and dye lot.
  - 3. Seam locations, types, and methods.
  - 4. Aisle seaming sample
  - 5. Type of subfloor.
  - 6. Type of installation.
  - 7. Pattern type, repeat size, location, direction, and starting point.
  - 8. Pile direction.
  - 9. Type, color, and location of insets and borders.
  - 10. Type, color, and location of edge, transition, and other accessory strips.
  - 11. Transition details to other flooring materials.
  - 12. Base details.



- C. Samples for Verification and Initial Color Selection: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
  - 1. Carpet Tile: Full-size Sample.
  - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- long Samples.
- D. Sample Warranty: For special warranty.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
  - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
  - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- B. Warranty: Executed special warranty.

#### 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

#### 1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Commercial II certification level.
- B. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.
- C. Floor Radiant Panel Test: Flooring material meets the ASTM E -648 Radiant Panel Test, Class 1 requirements.
- D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
  - 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.



## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

## 1.10 FIELD CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

## 1.11 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
  - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
  - 2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
  - 3. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 CARPET TILE C1

- A. Basis of design product: Subject to compliance with requirements, provide, "Aerial Flying Colors" by Interface Commercial" or by the following:
  - 1. Or approved equal.
- B. Pattern: Aerial Flying Colors "AE315"
- C. Color: As selected by Architect from manufacturer's full range.
- D. Fiber Content: 100 percent RECYCLED type 6 nylon.
- E. Color System: 100 percent Solution dyed.
- F. Soil/Stain protection: Protekt



- G. Fiber Type: Aquafil
- H. Pile Characteristic: Tufted Pattern Loop
- I. Pile Thickness: 0.1090, inches, 2.3mm.
- J. Density: 6,400.
- K. Primary Backing/Backcoating: 100% Synthetic.
- L. Secondary Backing:
  - 1. GlasBac Tile.
- M. Size: 25cm x 1m.
- N. Applied Soil-Resistance Treatment: Intersept.
- O. Performance Characteristics: As follows:
  - 1. Appearance Retention Rating: Heavy traffic, 3.0 minimum according to ASTM D 7330.
  - 2. Critical Radiant Flux Classification: Not less than Class A-0.45 W/sq. cm.
  - 3. Electrostatic Propensity: Less than 3.0 kV according to AATCC 134.
  - 4. Emissions: Provide carpet tile that complies with testing and product requirements of CRI's "Green Label Plus #GLP0820" program.
  - 5. Emissions: Provide carpet tile that complies with the product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

## 2.2 ENTRY WAY CARPET TILE C2

- A. Basis of design product: Subject to compliance with requirements, provide, "Mannington Commercial Carpet." Collection: Friktion and Liaison Collection Carpet Entry System" the following Pattern[s] or comparable product by the following:
  - 1. Mannington Commercial; Liaison collection.
- B. Pattern: Recoarse II, Ruffian II, Change, Force and Inertia
- C. Color: As selected by Architect from manufacturer's full range.
- D. Fiber Content: 100 percent nylon 6, 6.
- E. Pile Characteristic: Tip Shear Tufted loop pile
- F. Pile Thickness: 0.155 for inches.



- G. Stitches: 10 per inch.
- H. Gage: 5/ 32.
- I. Face Weight: 36 oz/sq. yd and 38 oz/sq. yd
- J. Primary Backing/Backcoating: 100% Synthetic.
- K. Secondary Backing:
  - 1. Mannington: Infinity RE Modular.
- L. Size: 24 by 24 inches and 18 x 36 inches.
- M. Applied Soil-Resistance Treatment: Manufacturer's standard material.
- N. Performance Characteristics: As follows:
  - 1. Appearance Retention Rating: Heavy traffic, 3.0 minimum according to ASTM D 7330.
  - 2. Electrostatic Propensity: Less than 3.0 kV according to AATCC 134.
  - 3. Emissions: Provide carpet tile that complies with testing and product requirements of CRI's "Green Label Plus" program.
  - 4. Emissions: Provide carpet tile that complies with the product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

## 2.3 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
  - 1. Basis-of-Design Products: Subject to compliance with requirements, provide the following Ardex product or a comparable product:
    - a. Portland Cement-Based Flash Patching and Skim Coating: Feather Finish.
    - b. Portland Cement-Based Patching: SD-P.
    - c. Portland Cement-Based Self-Leveling Underlayment: K-10/K-60 Self-Leveling Underlayment Concrete.
- B. Adhesives: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
  - 1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).



2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Metal Edge/Transition Strips: Extruded aluminum with finish selected by Architect, of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
  2. Subfloor finishes comply with requirements specified in Section 03 30 00 "Cast-in-Place Concrete" for slabs receiving carpet tile.
  3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
  4. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
  5. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after substrates pass testing.
    - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
      - 1) At a minimum, test concrete substrates in at least 3 locations in separate parts of the floor for applications of 2000 square feet or less; provide one additional test location for each additional 1000 square feet, or fraction thereof.
    - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level measurement.



- C. For wood subfloors, verify the following:
  - 1. Underlayment over subfloor complies with requirements specified in Section 06 10 00 "Rough Carpentry."
  - 2. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- D. Existing Floors: Condition of existing subfloor is unknown prior to removal of existing flooring. If, after removal of existing flooring, subfloor requires leveling, patching, or filling, notify Architect in writing.
  - 1. Asbestos Abatement Areas: In areas where removal of existing flooring is included in asbestos abatement procedures, coordinate with entity responsible for abatement to ensure patching and repair is compatible with requirements for installation of carpet.
- E. Entry way carpet tile system.
  - 1. Install over existing Terrazzo, Marble or glossy flooring- level all grout lines with manufactures recommended leveler, remove glossy finish by sanding.
  - 2. VCT tiles must be secured to floor, remove all broken, loose or cracked tiles. All wax must be removed apply leveler as recommended by manufacture.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.
- G. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
  - 1. Ensure patching and repair materials are compatible with carpet tile.
  - 2. Levelness Tolerances: Apply patching and repair materials to provide levelness of floor substrate within 1/4 inch in 10 feet, unless more stringent levelness is recommended or required by carpet tile manufacturer.
  - 3. Flash Patching and Skim Coating: Apply flash patching material to areas with 1/8 inch or less depression.
  - 4. Patching: Apply patching material to areas with 1/8 inch or greater depression.



- 5. Self-Leveling Underlayment: Apply self-leveling material to areas where flash patching and patching described above cannot provide smooth, level surface acceptable to receive carpet tile.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

### 3.3 INSTALLATION

- A. Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

### 3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
  - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  - 2. Remove yarns that protrude from carpet tile surface.
  - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."



- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09 68 13



## **SECTION 09 91 00 – PAINTING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes surface preparation and application of paint systems, for the following:
  - 1. Exterior applications.
  - 2. Interior applications.
    - a. Painting systems indicated on Drawings and in Schedules applied to new and existing exterior and interior surfaces and related components including but not limited to items such as hollow metal doors frames, doors, access doors, trim pieces, window sash, trim and previously painted cabinet heater/fin tube enclosures, exposed ductwork etc., unless otherwise indicated, including appropriate surface preparation for all new or existing surfaces to be painted including previously painted surfaces and surfaces with existing wall coverings

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product for substrates indicated. Include preparation requirements and application instructions. Include all paint products under one cover sheet.
  - 1. Exterior steel.
  - 2. Exterior galvanized-metal.
  - 3. Interior CMU.
  - 4. Interior CMU (deep tone accent colors).
  - 5. Interior steel.
  - 6. Interior steel (deep tone accent colors).
  - 7. Interior steel piping, piping supports and hangers.
  - 8. Interior galvanized-metal.
  - 9. Interior plaster.
  - 10. Interior plaster (deep tone accent colors).
  - 11. Interior gypsum board.
  - 12. Interior gypsum board (deep tone accent colors).



- B. Samples for Verification and Initial Color Selection: For each type of finish system and in each color and gloss of finish indicated.
1. Submit Samples on rigid backing, 8 inches square.
    - a. For wood finishes, submit Samples on representative samples of actual wood substrates, 8 inches square.
  2. Step coats on Samples to show each coat required for system.
  3. Label each coat of each Sample.
  4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
1. Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  2. VOC content. Tints and /or colorant shall add no additional VOC to final product. Provide 3<sup>rd</sup> party certification of VOC content.
- D. Coatings Maintenance Manual:
1. Upon conclusion of the project, the contractor or paint manufacture/supplier shall furnish a coatings maintenance manual such as Sherwin Williams "Custodian Project Color and Product Information" report. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions. Touch up procedures and color samples of each color and finish used. All information contained in a self-bound 3 ring hole punched catalog.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For applicator.

## 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Paint: 10 percent, but not less than 1 gal. of each material and color applied.
  2. Stains and Transparent Finishes: 10 percent, but not less than 1 gal. of each material and color applied.



## 1.7 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual, experienced in applying finishes specified in this Section, who has successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; familiar with special requirements indicated; and with sufficient trained staff to apply manufacturer's products according to specified requirements.
- B. Mockups: Apply mockups of each finish system indicated to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each finish system specified in Part 3.
    - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft.
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

## 1.9 FIELD CONDITIONS

- A. Apply finishes only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.
- B. Do not apply finishes when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior finishes in snow, rain, fog, or mist.
- D. Lighting: Do not install finishes until a lighting level of not less than 80 fc is provided on the surfaces to receive finishing.



## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following:
  - 1. Benjamin Moore & Co.
  - 2. PPG Architectural Finishes, Inc.
  - 3. Sherwin-Williams Company (The).
- B. Submittals containing manufactures other than stated above, will require a product by product comparison for each type of paint. All Comparable equals are to be matched with corresponding Sherwin Williams specified products.
- C. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in Part 3 articles for the application indicated.

### 2.2 MATERIALS, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.
  - 3. Provide products of same manufacturer for each coat in a finish system.
  - 4. "All-in-one" paint and primer products are not acceptable.
- B. VOC Compliance: All paint products shall meet New York requirements for Volatile Organic Compound (VOC) and Ozone Transport Commission (OTC) regulations, January 2005.
- C. Colors: As selected by Architect from manufacturer's full range.
  - 1. 25 percent of surface area will be painted with deep tones.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.



1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - a. Concrete: 12 percent.
  - b. Masonry (Clay and CMU): 12 percent.
  - c. Wood: 15 percent.
  - d. Gypsum Board: 12 percent.
  - e. Plaster: 8 percent.
- B. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- C. Plaster Substrates: Verify that plaster is fully cured.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be finished. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
  1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- B. Clean substrates of substances that could impair bond of finishes, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce finish systems indicated.
- C. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  1. SSPC-SP 3, "Power Tool Cleaning."
  2. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."



- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Galvanized Metal/Galvanized Deck, Factory Primed Surface-Coordinate with approved paint manufacture on compatibility of paint finish coats to factory prime surface.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  - 1. Scrape and clean knots. Before applying primer apply coat of knot sealer recommended in writing by topcoat manufacturer for coating system indicated.
  - 2. Apply wood filler paste to open-grain woods to produce smooth, glasslike finish.
  - 3. Sand surfaces that will be exposed to view and dust off.
  - 4. Prime edges, ends, faces, undersides, and back sides of wood.
  - 5. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.
- L. Alteration Work: Comply with applicable surface preparation requirements specified and as recommended by finish materials manufacturer for existing surfaces to receive paint or other finishes, including cleaning, sanding, and roughening as required for proper adherence of new finish material.
  - 1. Existing Woodwork: Strip existing wood finish to bare wood using commercially available solvents compatible with finish. Use in strict accordance with manufacturer's printed instructions. After stripping operation is complete and surface is dry, sand surface with sandpaper, using random orbital sanding machine.

### 3.3 APPLICATION

- A. Apply finishes according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for finish and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.



4. Do not apply paints over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.
- E. Alterations: Finish new surfaces adjacent to unaltered existing surfaces with finish of same type and surface texture as corresponding adjacent surfaces, unless otherwise indicated. Finish patched, damaged, or extended surfaces to match existing surfaces.
- F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  1. Paint the following work where exposed in equipment rooms:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - h. Duct, equipment, pipe and insulation having cotton or canvas insulation covering or another paintable jacket material.
  2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or another paintable jacket material.
    - h. Other items as directed by Architect.
  3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.



### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner will engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from finish operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
  - 1. First Coat:
    - a. Benjamin Moore & Co.; Super Spec HP Acrylic Metal Primer P04.
    - b. PPG Paints; Inc.; Pitt-Tech Interior/Exterior Industrial DTM Primer/Finish Enamel 90-712.
    - c. Sherwin-Williams Company (The); Pro Industrial Pro-Cryl® Universal Primer; B66 Series at 1.9-3.8 mils DFT.
  - 2. Second and Third Coats:
    - a. Benjamin Moore & Co.; Ultra Spec HP DTM Acrylic Gloss, HP28 or S/G Enamel HP29.
    - b. PPG Paints; Inc.; Pitt-Tech Industrial DTM Acrylic Gloss 90-374.
    - c. Sherwin-Williams Company (The); Pro Industrial™ Waterbased Alkyd Urethane Enamel Semi-Gloss; B53 Series at 1.4-1.7 DFT



B. Galvanized-Metal Substrates:

1. First Coat:

- a. Benjamin Moore & Co.; Super Spec HP Acrylic Metal Primer P04.
- b. PPG Paints; Inc.; Pitt-Tech Interior/Exterior Industrial DTM Primer/Finish Enamel 90-712.
- c. Sherwin-Williams Company (The); Pro Industrial Pro-Cryl® Universal Primer; B66 Series at 1.9-3.8 mils DFT.

2. Second and Third Coats:

- a. Benjamin Moore & Co.; Ultra Spec HP DTM Acrylic Low Luster HP29 or Semi-Gloss HP29.
- b. PPG Paints; Speedhide Exterior Acrylic Latex Satin 6-2045XI or Semi-Gloss 6-900XI.
- c. Sherwin-Williams Company (The); Pro Industrial™ Waterbased Alkyd Urethane Enamel Low-Gloss or Semi-Gloss; B53 Series at 1.4-1.7 DFT

3.7 INTERIOR PAINTING SCHEDULE

A. CMU Substrates:

1. First Coat:

- a. Benjamin Moore & Co.; Super Spec Masonry Int-Ext Hi-Build Block Filler 571.
- b. PPG Paints: Speedhide Interior/Exterior Latex Block Filler 6-7.
- c. Sherwin-Williams Company (The); PrepRite Block Filler B25W25

2. Second and Third Coats (Semi-Gloss):

- a. Benjamin Moore & Co.; N539 Ultra Spec 500 Interior Semi-Gloss.
- b. PPG Paints: Speedhide Interior Semi-Gloss Latex 6-500.
- c. Sherwin-Williams Company (The); Pro Mar 200 Zero VOC Interior Latex S/G B31 Series.

B. CMU Substrates (Deep Tone Accent Colors):

1. First Coat: Use tinted primer.

- a. Benjamin Moore & Co.; Super Spec Masonry Int-Ext Hi-Build Block Filler 571.
- b. PPG Paints: Speedhide Interior/Exterior Latex Block Filler 6-7.
- c. Sherwin-Williams Company (The); PrepRite Block Filler B25W25.



2. Second and Third Coats (Semi-Gloss): Additional coats may be required.
    - a. Benjamin Moore & Co.; Ultra Spec 500 Interior Semi-Gloss N539.
    - b. PPG Paints: Speedhide Interior Semi-Gloss Latex 6-500.
    - c. Sherwin-Williams Company (The); Pro Industrial DTM Acrylic Coating S/G (B66-20 DTM Acrylic Coating S/G (B66-W01151 Series) or Gloss (B66-W01051 Series).
- C. Steel Substrates (Deep Tone Accent Colors):
1. First Coat: Use tinted primer.
    - a. Benjamin Moore & Co.; Super Spec HP Acrylic Metal Primer P04.
    - b. PPG Paints: Pitt-Tech Interior/Exterior Industrial DTM Primer/Finish Enamel 90-712.
    - c. Sherwin-Williams Company (The); Pro Industrial DTM Acrylic Primer Finish B66W1.
  2. Second and Third Coats (Semi-Gloss): Additional coats may be required.
    - a. Benjamin Moore & Co.; Ultra Spec HP DTM Acrylic Semi-Gloss HP29 or Gloss HP28.
    - b. PPG Paints: Pitt-Tech Industrial DTM Acrylic Satin 90-474.
    - c. Sherwin-Williams Company (The); Sherwin-Williams Company (The); Pro Industrial™ Waterbased Alkyd Urethane Enamel Low-Gloss or Semi-Gloss; B53 Series at 1.4-1.7 DFT
- D. Steel Piping, Piping Supports and Hangers:
1. First Coat:
    - a. Benjamin Moore & Co.; Super Spec HP Acrylic Metal Primer P04.
    - b. PPG Paints: Pitt-Tech Interior/Exterior Industrial DTM Primer/Finish Enamel 90-712.
    - c. Sherwin-Williams Company (The); Pro Industrial DTM Acrylic Primer Finish B66W1.
  2. Second and Third Coats (Semi-Gloss):
    - a. Benjamin Moore & Co.; N539 Ultra Spec Interior Semi-Gloss.
    - b. PPG Paints: Speedhide Interior Latex Semi-Gloss 6-500.
    - c. Sherwin-Williams Company (The); Pro Industrial DTM Acrylic Coating S/G (B66-W01151/B66-W01051).



E. Galvanized-Metal Substrates:

1. First Coat:

- a. Benjamin Moore & Co.; Super Spec HP Acrylic Metal Primer P04.
- b. PPG Paints: Pitt-Tech Interior/Exterior Industrial DTM Primer/Finish Enamel 90-712.
- c. Sherwin-Williams Company (The); Sherwin Williams Pro Industrial Pro Cryl Universal Primer B66-1310

2. Second and Third Coats:

- a. Benjamin Moore & Co.; Ultra Spec HP DTM Acrylic Semi-Gloss HP29.
- b. PPG Paints: Pitt-Tech Industrial DTM Acrylic Satin 90-474.
- c. Sherwin-Williams Company (The); Pro Industrial DTM Acrylic Coating S/G (B66-W01151/B66-W01051).

F. Plaster Substrates:

1. First Coat:

- a. Benjamin Moore & Co.; Super Spec Int/Ext 100% Acrylic Masonry Sealer N066.
- b. PPG Paints: Perma-Crete Alkali-Resistant Primer 4-603.
- c. Sherwin-Williams Company (The); Loxon Concrete & Masonry Primer LX02W0050.

2. Second and Third Coats (Eggshell):

- a. Benjamin Moore & Co.; N538 Ultra Spec 500 Interior Eggshell.
- b. PPG Paints: Speedhide Zero Interior Latex Eggshell 6-4310.
- c. Sherwin-Williams Company (The); Pro Mar 200 0 VOC Interior Latex Egg Shell (B20-2600 Series.)

G. Plaster Substrates (Deep Tone Accent Colors):

1. First Coat: Use tinted primer.

- a. Benjamin Moore & Co.; Fresh Start Primer 023.
- b. PPG Paints: Perma-Crete Alkali-Resistant Primer 4-603.
- c. Sherwin-Williams Company (The); Loxon Concrete & Masonry Primer LX02W0050.

2. Second and Third Coats (Eggshell): Additional coats may be required.

- a. Benjamin Moore & Co.; N538 Ultra Spec 500 Interior Eggshell.
- b. PPG Paints: Speedhide Zero Interior Latex Eggshell 6-4310.
- c. Sherwin-Williams Company (The); Pro Mar 200 0 VOC Interior Latex Egg Shell (B20-2600 Series.)



H. Gypsum Board Substrates:

1. First Coat:

- a. Benjamin Moore & Co.; Fresh Start Multi-Purpose Latex N023.
- b. PPG Paints: Speedhide Interior Latex Primer/Sealer 6-2
- c. Sherwin-Williams Company (The); Pro Mar 200 Zero VOC Interior Latex Primer (B28W02600.)

2. Second and Third Coats (Eggshell):

- a. Benjamin Moore & Co.; N538 Ultra Spec 500 Interior Eggshell.
- b. PPG Paints: Speedhide Interior Latex Eggshell 6-411.
- c. Sherwin-Williams Company (The); Pro Mar 200 Zero VOC Interior Latex Low Sheen (B20-Series.)

I. Gypsum Board Substrates (Deep Tone Accent Colors):

1. First Coat: Use tinted primer.

- a. Benjamin Moore & Co.; Fresh Start Multi-Purpose Latex N023.
- b. PPG Paints: Speedhide Interior Latex Primer/Sealer 6-2.
- c. Sherwin-Williams Company (The); Pro Mar 200 Zero VOC Interior Latex Primer (B28W02600.)

2. Second and Third Coats (Eggshell): Additional coats may be required.

- a. Benjamin Moore & Co.; N538 Ultra Spec 500 Interior Eggshell.
- b. PPG Paints: Speedhide Interior Latex Eggshell 6-411.
- c. Sherwin-Williams Company (The); Pro Mar 200 0 VOC Interior Latex Low Sheen (B24-2600 Series).

END OF SECTION 09 91 00



**SECTION 09 96 00 – HIGH-PERFORMANCE COATINGS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section includes surface preparation and application of high-performance coating systems, for the following:
  - 1. Exterior applications.

**1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product for substrates indicated. Include preparation requirements and application instructions. Include all paint products under one cover sheet.
  - 1. Exterior Steel.
  - 2. Exterior Steel – Gas Piping
- B. Samples for Verification and Initial Selection: For each type of coating system and in each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 2. VOC content.

**1.5 QUALITY ASSURANCE**

- A. Qualification Data: For applicator.



## 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Coatings: 10 percent, but not less than 1 gal. of each material and color applied.

## 1.7 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual, experienced in applying high performance coatings specified in this Section, who has successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; familiar with special requirements indicated; and with sufficient trained staff to apply manufacturer's products according to specified requirements.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

## 1.9 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior coatings in snow, rain, fog, or mist.
- D. Lighting: Do not install high-performance coatings until a lighting level of not less than 80 fc is provided on the surfaces to receive coating.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following:
  - 1. Benjamin Moore & Co.
  - 2. Sherwin-Williams Company (The).
  - 3. Tnemec Inc.
- B. Submittals containing manufactures other than stated above, will require a product by product comparison for each type of paint. All Comparable equals are to be matched with corresponding Sherwin Williams's specified products.



- C. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to products listed in Part 3 articles for the application indicated.

## 2.2 HIGH PERFORMANCE COATINGS, GENERAL

### A. Material Compatibility:

1. Provide materials for use within each coating system that are compatible with one another, and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a coating system, provide products recommended in writing by manufacturers of topcoat for use in coating system and on substrate indicated.
3. Provide products of same manufacturer for each coat in a coating system.
4. "All-in-one" paint and primer products are not acceptable.

- B. VOC Compliance: Provide exterior coating products complying with New York requirements for Volatile Organic Compound (VOC) and Ozone Transport Commission (OTC) regulations, January 2005.

- C. Colors: As selected by Architect from manufacturer's full range.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
  1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.



- B. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and re-prime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- C. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. SSPC-SP 10/NACE No. 2, "Near-White Blast Cleaning."
- D. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- E. After removing all surface contamination, the surface should be scuff sanded or scrubbed with an abrasive cleaner to dull the surface for best adhesion.

### 3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for coating and substrate indicated.
  - 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner will engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.



1. Contractor shall touch up and restore coated surfaces damaged by testing.
2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

### 3.6 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Steel Substrates:
  1. First Coat:
    - a. Benjamin Moore & Co. (No Zinc primers) suggest Corotech V160 Epoxy Mastic Coating @4.6-7.2 DFT.
    - b. Sherwin-Williams Company (The); Corothane 1 Gal-Va-Pac Zinc Primer B65G00010 at 3.0-4.0 mils DFT.
    - c. Tnemec Inc.; Series 90-97 Tneme-Zinc at 2.5 to 3.5 mils DFT.
  2. Second Coat:
    - a. Benjamin Moore & Co. Corotech V160 Epoxy Mastic Coating @4.6-7.2 DFT
    - b. Sherwin-Williams Company (The); Macropoxy 646 B58 series 7.0-5.0 mils DFT
    - c. Tnemec Inc.; Series 66HS Hi-Build Epoxoline at 3.0 to 5.0 mils DFT.
  3. Third Coat:
    - a. Benjamin Moore & Co. Corotech V500 Acrylic Aliphatic Urethane Coating Gloss or V510 Acrylic Aliphatic Urethane Coating Semi-Gloss at 3.2-4.6 mils DFT
    - b. Sherwin-Williams Company (The); Hi Solids Polyurethane B65 series 4.5-3.0 mils DFT
    - c. Tnemec Inc.; Series 1074 or 1095 Endura-Shield II at 2.0 to 5.0 mils DFT.



B. Steel Substrates: Black Steel Gas Piping – above ground.

1. First Coat:

- a. Benjamin Moore & Co. Corotech V160 Surface Tolerant Epoxy Mastic (4.6–7.2).
- b. Sherwin-Williams Company (The); Macropoxy 646 Fast Cure, (5.0-10.0) DFT.
- c. Tnemec Inc.; Series V69F Hi-Build Epoxoline II (6.0-10.0) DFT

2. Second Coat:

- a. Benjamin Moore & Co. Ben; Corotech V160 Surface Tolerant Epoxy Mastic (4.6–7.2).
- b. Sherwin-Williams Company (The); Macropoxy 646 Fast Cure, (5.0-10.0) DFT.
- c. Tnemec Inc.; Series V69F Hi-Build Epoxoline II (6.0-10.0) DFT

3. Third Coat:

- a. Benjamin Moore & Co. Ben; Corotech V510 Semigloss ( or V500 Gloss) Aliphatic Urethane (2.0-2.8).
- b. Sherwin-Williams Company (The); Hi-Solid Polyurethane 250, Aliphatic Polyurethane, (3.0-5.0) DFT.
- c. Tnemec Inc.; Series 1095 Endura-Shield (2.5-3.5) DFT

C. Steel Substrates: Black Steel Gas Piping – Below ground.

1. First Coat:

- a. Benjamin Moore & Co. Corotech V157 Coal Tar Epoxy (8.3 -16.1).
- b. Sherwin-Williams Company (The); PipeClad, Exterior Pipeline Epoxy, (25.0-60.0) DFT.
- c. Tnemec Inc.; Series 46H-413 Hi-Build Tnemec -Tar (18.0-20.0) DFT

2. Second Coat:

- a. Benjamin Moore & Co. Ben; Not Required
- b. Sherwin-Williams Company (The); Not Required
- c. Tnemec Inc.; Series 46H-413 Hi-Build Tnemec -Tar (18.0-20.0) DFT

END OF SECTION 09 96 00



## **SECTION 10 14 00 - SIGNAGE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Interior unframed signs.
- B. Scope: Provide room identification signs at all permanent rooms. Room identification signs to contain room names, room numbers, and graphics as indicated on Drawings and in Signage Schedule attached to this Section. Provide other signs as indicated on Drawings and in Signage Schedule attached to this Section.
  - 1. Provide barrier-free and tactile signage at all locations required by Code and as indicated on Drawings.

#### **1.3 DEFINITIONS**

- A. Accessible: In accordance with the accessibility standard.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Meet with Owner and signage Installer.
  - 2. Review requirements for signage including, but not limited to, the following:
    - a. Size, configuration, and location of each sign.
    - b. Text, room name, room number, and graphics selections.
    - c. Color selections.
    - d. Sign Samples.
    - e. Sign quantities.
  - 3. Review requirements for accessible signage.
  - 4. Review requirements for mounting locations, heights, and types.



## 1.5 SUBMITTALS, GENERAL

- A. General: Submit all action submittals (except Samples for Verification) and informational submittals required by this Section concurrently.

## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for signs.
  - 1. Interior unframed signs.
  - 2. Accessories.
- B. Shop Drawings: For signs.
  - 1. Include fabrication and installation details and attachments to other work.
  - 2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
  - 3. Show message list, typestyles, graphic elements including raised characters and Braille and layout for each sign.
  - 4. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Photocopies of Tetra Tech documentation not acceptable.
  - 5. Message list for each sign.
  - 6. Large-scale details of wording, lettering artwork and Braille layout.
  - 7. Complete color list – both standard and custom colors.
  - 8. Fasteners and anchors.
  - 9. Signage Schedule.
  - 10. Adhesives.
  - 11. Two-face tape.
- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
  - 1. Include representative Samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), and as follows:
  - 1. Signs: Full-size Sample of interior unframed sign.
  - 2. Field-Applied, Vinyl-Character Signs: Full-size Sample of characters.
- E. Product Schedule: For signs. Use same designations indicated on Drawings or specified.
- F. Sample Warranty: For special warranty.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.



## 1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.
- B. Warranty: Executed special warranty.

## 1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

### 1. Qualifications

- a. Manufacturer: Obtain each sign type and all associated accessories through one source from single manufacturer.
- b. Installer: Workers to be approved by signage manufacturer and supply list of recently completed installations.

### 2. Regulatory Requirements

- a. ADA Compliance: Comply with the Americans with Disabilities Act (ADA), and with code provisions as adopted by authorities having jurisdiction.

## 1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to correct or replace components of signs that fail in materials or workmanship within specified warranty period.

### 1. Failures include, but are not limited to, the following:

- a. Deterioration of finishes beyond normal weathering.
- b. Deterioration of embedded graphic image.
- c. Separation or delamination of sheet materials and components.

### 2. Warranty Period: Five years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design", ICC A117.1, and building Code in effect for Project.
- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: 200 or less.
  - 2. Smoke-Developed Index: 450 or less.



## 2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, unless otherwise indicated, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. ASI Sign Systems, Inc., dba ASI.
  - 2. Best Sign Systems, Inc.
  - 3. Mohawk Sign Systems.
- B. Source Limitations: Obtain signs from single source from single manufacturer.

## 2.3 INTERIOR UNFRAMED SIGNS

- A. Interior Unframed Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; for interior use, and as follows:
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide ASI; InTouch ADA-Ready Sign System, or comparable product.
  - 2. Sign Materials:
    - a. Mounting Panel: 0.125-inch-thick acrylic.
    - b. Face: 0.0015-inch-thick PVC/vinyl acetate bonded to mounting panel.
  - 3. Fabrication:
    - a. Graphics and Text: Accessible tactile copy and Grade 2 Braille (except as otherwise indicated). Color as selected by Architect from manufacturer's full range. Finish raised characters to contrast with background color, and finish Braille to match background color.
      - 1) Where “( # )” appears in Sign Type paragraph below, verify with Architect number to be used in place of “( # )”.
      - 2) Where “(room name)” appears in Sign Type paragraph below, verify with Architect room name to be used in place of “(room name)”.
    - b. Typeface: As selected by Architect from manufacturer's full range.
    - c. Background: Finish and color as selected by Architect from manufacturer's full range.
  - 4. Mounting: Manufacturer's standard method for substrates indicated.
- B. Sign Types:
  - 1. Type 1: Occupancy Load Sign:
    - a. Size: 3'-8" wide by 1'-2" high.



- b. Text Size, Color, and Content:
    - 1) 3-inch-high, 3/4-inch stroke, red lettering: MAXIMUM OCCUPANCY.
    - 2) 2-inch-high, 1/2-inch stroke, red lettering: NOT TO EXCEED.
    - 3) 3-inch-high, 3/4-inch stroke, red lettering: (#) PERSONS.
  - c. Field Color: White.
  - d. Provide in locations indicated and in compliance with requirements of authorities having jurisdiction.
2. Type 5: Room Name/Number Sign:
- a. Size: 6 inches by 6 inches.
  - b. Text Size, Font Style, and Content:
    - 1) 1-inch-high (minimum) sans serif lettering: (#).
    - 2) 5/8-inch-high (minimum) sans serif lettering: (room name).Arrangement: Two lines where needed.

## 2.4 ACCESSORIES

- A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Provide inserts, as required, to be set into concrete or masonry work.
- B. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
- C. Adhesives: As recommended by sign manufacturer and with a VOC content 4 g/L or less for adhesives used inside the weatherproofing system and applied on-site when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045-inch-thick, with adhesive on both sides.

## 2.5 FABRICATION

- A. Fabrication: Comply with requirements of The Americans Disabilities Act (ADA) of 1990 and dimensions and characteristic given below and in 'Interior Signage Types'.
  - 1. Braille Characters: Grade 2 Braille (literary Braille) consisting of 189-part words or whole word contractions, in addition to 63 Grade 1 Braille characters.
  - 2. Character Height (based on upper case): 5/8-inch minimum; 3 inches maximum.
  - 3. Tactile Characters: Raised 1/32-inch minimum thickness.
  - 4. Type Style: All upper-case letters, without serifs or with simple serifs.
  - 5. Symbols: Provide border around symbol (not required to be raised) with verbal description placed directly below symbol in 1/32 inch raised and Braille characters.



- 6. Color: Up to 5 colors throughout school, as selected by Architect from manufacturer's full color range.
- B. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

## 2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Verify that anchorage devices embedded in permanent construction are correctly sized and located to accommodate signs.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
  - 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Accessibility: Install signs in locations as indicated on Drawings and according to the accessibility standard.
- C. Mounting Locations: Locate on wall adjacent to latch side of door 60 inches from center of sign to finished floor, and 2 inches from edge of door frame. Where adequate wall space adjacent to latch side of door is not available, and at double-leaf doors, place sign on nearest adjacent wall.



D. Mounting Methods:

1. Through Fasteners: Drill holes in substrate using predrilled holes in sign as template. Countersink holes in sign if required. Place sign in position and flush to surface. Install through fasteners and tighten.
2. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.
3. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully corrected by finish touchup or similar minor corrective procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

PART 4 - SIGN SCHEDULES

4.1 SIGN SCHEDULES

- A. All permanent rooms to receive room identification system containing both text and room numbers.
- B. Provide barrier-free and tactile signage at all locations required by code and as shown on the architectural drawings.
- C. Coordinate mounting heights as per CABO/ANSI A117.1 and as per manufacturer's recommendations.
- D. All room names and numbers are subject to change, Supplier to verify with school district during construction phase, prior to submittal phase, for final room names and numbers.
- E. All colors to be issued during construction- colors are to be selected by district/client.



F. Provide signs as per signage schedule below, as require by code and signage drawing.

COLOR	ROOM NO.	SIGNAGE TYPE	SIGNAGE TEXT	REMARKS
			<b>WALLKILL HIGH SCHOOL</b>	
	110	5	Name by district	At vestibule window
			<b>JOHN G BORDEN MIDDLE SCHOOL</b>	
	157	1&5	Name by district	
	157A	5	Name by district	
			<b>OSTRANDER ELEMENTARY</b>	
	C43	5	Name by district	
			<b>PLATTEKILL ELEMENTARY</b>	
	111A	5	Name by district	
			<b>LEPTONDALE ELEMENTARY</b>	
	S01	5	Name by district	

END OF SECTION 10 14 00



## **SECTION 10 14 53 - TRAFFIC SIGNAGE**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Traffic signs. Related Sections:
  - 1. Section 03 30 53 "Miscellaneous Cast-In-Place Concrete"

#### **1.3 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals (except Samples for Verification) required by this Section concurrently.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Traffic signs.
  - 2. Traffic sign posts.
- B. Shop Drawings: For traffic signage.
  - 1. Include fabrication and installation details and attachments to other work.
  - 2. Show sign mounting heights and accessories.
  - 3. Show message list, typestyles, graphic elements, and layout for each sign at least half size.
- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
  - 1. Include representative Samples of available typestyles and graphic symbols.
  - 2. Include color samples.

#### **1.5 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For signs to include in maintenance manuals.



## 1.6 QUALITY ASSURANCE

- A. Comply with all applicable state and local requirements for traffic signs, including (but not limited to) reflectivity, foundation construction, and wind resistance.
  - 1. Comply with U.S. Department of Transportation's Manual on Uniform Traffic Control Devices (MUTCD), AASHTO M268 and NYSDOT standard specifications and regulations.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard:
  - 1. Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities, ICC A117.1, and building code in effect for Project for signs.
  - 2. Comply with applicable provisions in the New York State Department of State Division of Administrative Rules, Part 300 Universal Symbol of Access, Part 300.4 Accessible Wording, Part 300.5 Accessible Symbol, Part 300.6 Accessibility Graphic and Components, and building code in effect for Project for signs.

### 2.2 TRAFFIC SIGNS

- A. Traffic Sign: Sign of single-panel configuration; with smooth, uniform surfaces and support assembly; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product.
  - 1. Allstate Sign & Plaque Corporation; Aluminum Traffic & Parking Signs.
- C. Materials:
  - 1. Solid-Sheet Sign Panels: Aluminum sheet and as follows:
    - a. Thickness: 0.080 inch.
    - b. Surface-Applied Graphics: Applied vinyl film.
  - 2. Posts: Steel.
    - a. Description: Hot-dipped galvanized round steel post with vandal-proof cap in pavement, U-channel with breakaway base in lawn.
    - b. Installation Method: Direct burial driven.
  - 3. Text and Typeface: Typeface as selected by Architect from manufacturer's full range and content as scheduled.



4. Reflectivity:

- a. Traffic control, directional and guide signage: Provide high intensity prismatic reflective sheeting (Federal DOT Type III and IV Reflective).
- b. Parking and informational signage: Provide engineer grade prismatic reflective sheeting (Federal DOT Type 1 Reflective).

2.3 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- B. Aluminum Extrusions: ASTM B 221, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated.
- C. Steel Materials:
  1. U-Channel posts: Powdercoated U-channel steel.
    - a. Strength: 3 lbs. per foot
    - b. Length: 8-ft minimum
  2. Galvanized Steel Pipe: Group IC, SS40, round steel electric-resistance-welded pipe.
    - a. Diameter: 3.000-inches
    - b. Steel Cap for Round Post: Galvanized steel with vandal-resistant secure fit to pipe.
    - c. Length: 8-ft minimum
  3. Steel Tubing: ASTM A 500, Grade B.
  4. Bolts for Steel Framing: ASTM A 307 or ASTM A 325 as necessary for design loads and connection details.
  5. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names, or roughness.
- D. Concrete: Comply with requirements in Section 03 30 53 "Miscellaneous Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3,000 psi.

2.4 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
  1. Furnish nonferrous-metal, stainless-steel, or hot-dip galvanized devices unless otherwise indicated.



## 2.5 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
- B. Sign Message Panels: Construct sign-panel surfaces to be smooth and to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
  - 1. Increase panel thickness or reinforce with backing materials as needed to produce surfaces without distortion, buckles, warp, or other surface deformations.
- C. Post Fabrication: Fabricate posts designed to withstand wind pressure indicated for Project location and of lengths required for installation method indicated for each sign.
  - 1. Steel Posts: Fabricate from steel tubing unless otherwise indicated. Include post caps, reinforcement where required for loading conditions, and related accessories required for complete installation.
  - 2. Direct Burial: Fabricate posts 36 inches longer than height of sign to permit direct burial or embedment in concrete-filled postholes.

## 2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## 2.7 METALLIC-COATED STEEL FINISHES

- A. Baked-Enamel or Powder-Coat Finish: Provide factory-applied manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.
- B. Galvanized Finish: Type B, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.



### 3.2 INSTALLATION

- A. General: Install signs using installation methods indicated and according to manufacturer's written instructions.
  - 1. Install signs level, plumb, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs so they do not protrude or obstruct according to accessibility standard.
  - 3. Before installation, verify that sign components are clean and free of materials or debris that would impair installation.

### 3.3 INSTALLING POSTS

- A. Vertical Tolerance: Set posts plumb within a tolerance of 1/16 inch in 3 feet.
- B. Direct-Burial Method:
  - 1. Excavation: Excavate posthole to dimensions indicated. Reconstruct subgrade that is not firm, undisturbed, or compacted soil, or that is damaged by freezing temperatures, frost, rain, accumulated water, or construction activities by excavating an additional 12 inches, backfilling with satisfactory soil or well-graded aggregate, and compacting to original subgrade elevation.
  - 2. Setting in Cast-in-Place Concrete: Set post in position, support to prevent movement, and place concrete in posthole as indicated.

### 3.4 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 10 14 53



## **SECTION 10 82 13 - LOUVERED EQUIPMENT SCREENS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Fixed extruded-aluminum louvered equipment screens.

#### **1.3 DEFINITIONS**

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axis of the blades are horizontal).

#### **1.4 SUBMITTALS, GENERAL**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated.
  - 1. Louvered equipment screens.
- B. Shop Drawings: For louvered equipment screens and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
- C. Samples: For each type of metal finish required.
- D. Delegated-Design Submittal: For louvered equipment screens indicated to comply with structural performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Sample Warranties: For manufacturer's special warranties.



## 1.6 CLOSEOUT SUBMITTALS

- A. Executed Warranties: For manufacturer's special warranties.

## 1.7 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions by field measurements before fabrication.

## 1.8 WARRANTY

- A. Special Finish Warranty: Manufacturer agrees to repair or replace components on which finishes fail in materials or workmanship within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Louvered equipment screens shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.
  - 1. Wind Loads: Determine loads based on pressures as indicated on Drawings.
- B. Windborne-Debris-Impact Resistance: Louvered equipment screens located within 30 feet of grade shall pass basic protection, when tested according to AMCA 540.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

### 2.2 FIXED EXTRUDED-ALUMINUM LOUVERED EQUIPMENT SCREENS

- A. Horizontal, Continuous-Line, Louvered Equipment Screens:
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Architectural Louvers Co., Harray, LLC; Model V4JS or comparable product by one of the following:



- a. Airolite Company, LLC (The).
  - b. Industrial Louvers Inc.
2. Louver Depth: 4 inches.
3. Blade Type: Inverted.
4. Blade Nominal Thickness: Not less than 0.080 inch.
5. Vertical Support Type: Recessed.

## 2.3 MATERIALS

- A. Aluminum Extrusions: ASTM B221, Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: ASTM B209, Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Use types and sizes to suit unit installation conditions.
  1. Use Phillips flat-head screws for exposed fasteners unless otherwise indicated.
  2. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
  3. For color-finished louvered equipment screens, use fasteners with heads that match color of louvers.

## 2.4 FABRICATION

- A. Factory assemble louvered equipment screens to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Maintain equal louver blade spacing to produce uniform appearance.
- C. Include supports, anchorages, and accessories required for complete assembly.
- D. Provide vertical support of type and at spacings indicated, but not more than is recommended by manufacturer, or 72 inches o.c., whichever is less.
  1. Fully Recessed Supports: Provide supports fully recessed behind louver blades. Where length of louver exceeds fabrication and handling limitations, fabricate with close-fitting blade splices designed to permit expansion and contraction.
  2. Exterior Corners: Prefabricated corner units with mitered blades and with fully recessed supports at corners.



## 2.5 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Three-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
  - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 INSTALLATION

- A. Locate and place louvered equipment screens level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.

### 3.3 ADJUSTING AND CLEANING

- A. Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvered equipment screens damaged during installation and construction, so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
  - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 10 82 13



**SECTION 11 68 00 – PLAYGROUND EQUIPMENT AND SURFACING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY****A. Section Includes**

1. Playground equipment.
2. Free Standing Swings.
3. Playground perimeter edging system.
4. Engineered wood fiber surfacing.
5. Wear Pads.

**B. Related Sections**

1. SECTION 03 30 53 – Miscellaneous Cast-in-Place Concrete
2. SECTION 31 10 00 – Site Clearing
3. SECTION 31 20 00 – Earth Moving

**1.3 SYSTEM DESCRIPTION****A. Play Equipment Requirements**

1. Play Structures: Include in play structure all activity components and related accessories shown on Drawings and described in Project Manual.

**B. Playground Surfacing Requirements**

1. Engineered Wood Fiber Surfacing

**C. Other playground amenities include, but are not limited to, the following items:**

1. Polyethelene Modular Edging
2. Rubber Wear Mats

**1.4 SUBMITTALS**

- A. Comply with requirements of SECTION 01 33 00 - Submittals, and as modified below.



B. Product Data

1. Play Structures, Edging, Access Ramp and Benches: Submit manufacturer's product literature indicating materials, finish, and other information required to demonstrate compliance with these requirements for each component.
2. Playground Surfacing: Submit manufacturer's specifications and installation instructions for each type of playground surfacing indicated, including certifications to show compliance with specified requirements.

C. Shop Drawings

1. Play Structures: Submit shop drawings for play components to be provided indicating:
  - a. Overall dimensions (length, width, and height) of each play structure.
  - b. Location of structure on site.
  - c. Individual components of each structure including component dimensions and installation details.
2. Modular Edging, Wear Pads, ADA Access Ramp and Benches: Submit shop drawings showing location, dimensions and installation details.
3. Playground Surfacing: Submit shop drawings showing layout and details, including provisions for drainage.

D. Contract Closeout Submittals

1. Play Structures: Submit operating and maintenance instruction for play structures as item in "General Construction Instructions" manual described in SECTION 01 77 00.

1.5 QUALITY ASSURANCE

A. Qualifications

1. Play Structure Manufacturer: At least 10 completed play structures with similar components and complexity. Upon request, provide list of completed structures to Architect with Owner's name, address, telephone number, and representative's name.
2. Free Standing Swing Manufacturer: At least 10 completed free standing swings with similar components and complexity. Upon request, provide list of completed swings to Architect with Owner's name, address, telephone number, and representative's name.
3. Play Structure Installer: At least 5 completed play structures with similar components and complexity. Upon request, provide list of completed structures to Architect with Owner's name, address, telephone number, and representative's name.
4. Free Standing Swing Installer: At least 5 completed free standing swings with similar components and complexity. Upon request, provide list of completed swings to Architect with Owner's name, address, telephone number, and representative's name.



5. All pieces of playground equipment to conform to ASTM F 1487-95: Standard Consumer Safety Performance Specification for Playground Equipment for Public Use and the “Handbook for Public Playground Safety” by the U.S. Consumer Product Safety Commission.
6. IPEMA Certification: All pieces of playground equipment to be certified by International Playground Equipment Manufacturers Association (IPEMA).
7. All pieces of playground equipment and layout to conform to Americans with Disabilities Act (ADA) Accessibility guidelines.

#### 1.6 DELIVERY, STORAGE AND HANDLING

##### A. Acceptance at Site

1. Play Structure: Coordinate with Owner's representative delivery of materials to be installed by Owner. Place material on Site where directed by Owner's representative. Obtain signed receipt from Owner' representative and submit copy of receipt to Architect.
2. Free Standing Swings: Coordinate with Owner's representative delivery of materials to be installed by Owner. Place material on Site where directed by Owner's representative. Obtain signed receipt from Owner' representative and submit copy of receipt to Architect.

- B. Storage and Protection: Advise Owner's representative of manufacturer's storage and protection requirements for materials to be installed by Owner.

#### 1.7 SEQUENCING AND SCHEDULING

- A. Coordinate scheduling with other prime contractors.
- B. Playground Surfacing: Proceed with playground surfacing installation only after specified drainage provisions have been installed.

#### 1.8 FIELD TESTING

- A. After installation, manufacturers’ representative to inspect equipment for conformance with specifications, installation instructions and safety standards. Inspection to include:
1. Fastening Hardware: Ten percent of all hardware to be tested including bolts, lag/cap/set screws, nuts, etc. shall be tested for maximum fastening strength upon the completion of the installation. Submit method of testing and results.
  2. Equipment Height: 100% of equipment is to be field measured and certified that heights fall within the manufacturer specified range.
  3. Document of Acceptance: Provide a certified Document of Acceptance certified by the manufacturer that equipment has been properly installed according to manufacturer installation instructions and tolerances, including the fastening hardware and equipment height testing results.



## 1.9 WARRANTY

### A. Play Structure Manufacturer's Warranty

1. Steel or Aluminum Posts: Minimum 100 full year warranty (from date of purchase) against structural failure due to corrosion or natural deterioration and manufacturing defects in material and workmanship.
2. Plastic or Steel Components including decking, roofs, and slides: Minimum 15 full year warranty (from date of purchase) against corrosion or natural deterioration and defects in material and workmanship.
3. All other parts: Minimum 3 full year warranty (from date of purchase) against corrosion or natural deterioration and defects in material and workmanship.
4. Provide replacement parts by manufacturer without cost to Owner.
5. Advise Owner of "date of purchase" which establishes warranty period.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURED UNITS

- A. Play Equipment: All play equipment, including play structure units, swings, modular edging system, ADA access ramps, and related equipment, shall be furnished and provided by the contractor. The Contractor shall be responsible for coordinating delivery of and unloading play equipment and storing the equipment on-site until time of installation.

### 2.2 PLAY STRUCTURE COMPONENTS

- A. Basis-of Design-Product: Subject to compliance with requirements, provide "Play Structure" [Model \_\_\_\_\_]; or equivalent product manufactured by: Miracle Recreation, 878 E Highway 60, Monett, MO 65708. Telephone: 888-458-2752, Web: [www.miracle-recreation.com](http://www.miracle-recreation.com)
- B. General Materials Requirements:
1. Materials: Structurally sound and suitable for safe play. Durability shall be ensured on all steel parts by the use of heavy duty top grade commercial coatings such as zinc plating, zinc-nickel plating, powdercoating, PVC-coating, etc. Colors shall be specified by Owner.
  2. Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications). All primary fasteners shall include a locking patch type material that will meet the minimum torque requirements of IFI-125. Manufacturer to provide special tools for pinned hex fasteners.



3. PVC-Coating: All metal components to be PVC-coated shall be thoroughly cleaned in a hot phosphatizing pressure washer, then primed with a clear acrylic thermosetting solution. Primed parts shall be preheated prior to dipping in U.V. stabilized, liquid poly vinyl chloride, then salt cured at approximately 400 degrees. The finished coating shall be approximately 0.080-in +/- 0.020-in thick at an 85 durometer hardness and have a matte finish. Four standard colors shall be available.
  4. Polyester Powdercoating: All metal components to be powdercoated shall be free of excess weld and spatter. Parts shall be thoroughly cleaned via a 5-Stage Pretreatment process. Parts are then thoroughly dried and proceed through a set of automatic sprayers that apply electrostatic powdercoat. Parts are oven cured at 400 degrees F. The average powdercoat thickness is .0025-in.
  5. TGIC polyester powder shall be specially formulated for optimum U.V. stability and gloss retention and shall meet or exceed ASTM Standards for:
    - a. Adhesion (D-3359B)
    - b. Hardness (D-3363)
    - c. Impact (D-2794)
    - d. Salt Spray resistance (B-117)
    - e. U.V. Exposure (G-154)
    - f. Paint Line shall employ a "checkered" adhesion test daily.
- C. Decks: All decks shall be of modular design and have 5/16-in diameter holes on the standing surface. There shall be (4) slots in each face to accommodate face mounting of components. Decks shall be manufactured from a single piece of low carbon 12 GA (0.105-in) sheet steel (expanded metal decks and sheet steel thinner than 12 GA will not be accepted) conforming to ASTM specification A-569. The sheet shall be perforated then flanged formed and reinforced as necessary to ensure structural integrity. The unit shall then be PVC-coated brown only. Decks shall be designed so that all sides are flush with the outside edge of the supporting posts.
- D. Rotationally Molded Poly Parts: These parts shall be molded using prime compounded linear low-density polyethylene (high density polyethylene is not acceptable) with a tensile strength of 2,500 psi per ASTM D638 and with color and UV-stabilizing additives. Wall thickness varies by product from 0.187-in (3/16-in) to 0.312-in (5/16-in). Four standard colors shall be available.
- E. Polyethylene Parts: These parts shall be manufactured from high-density polyethylene that has been specially formulated for optimum U.V. stability and color retention. Products shall meet or exceed density of .9333 G/cc per ASTM D1505, tensile strength of 2,400 PSI per ASTM D638. Five standard solid colors shall be available. Some polyethylene parts shall available in a two-color product with (2) .125" thick exterior layers over a 0.500" interior core of a contrasting color. Eight standard two-color options shall be available.



- F. Posts: Post length shall vary depending upon the intended use and shall be a minimum of 42-in above the deck height. All posts shall be powdercoated with Super Durable Powdercoat to specified color. All posts shall have a "finished grade marker" positioned on the post identifying the bury line required for correct installation and the top of the loose fill protective surfacing. Top caps for posts shall be aluminum die cast (plastic caps are not acceptable) from 369.1 alloy and powdercoated with Super Durable Powdercoat to match the post color. All caps shall be factory installed and secured in place with (3) self-sealing rivets. A molded low-density polyethylene cap, with drain holes, shall be pressed onto the bottom end of the post to increase the footing area. Crushed, dimpled, or uncapped bottom posts are not acceptable.
- G. Concrete Footings:
1. Concrete: Provide concrete consisting of portland cement, ASTM C 150, aggregates, ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28 day compressive strength of 3,000 PSI, using at least 4 sacks of cement per cu. yd., 1-in maximum size aggregate, maximum 3" slump, and 2% to 4% entrained air.
- H. Aluminum Posts: All posts shall be aluminum (steel posts are not acceptable) and manufactured from 6005-T5 extruded tubing conforming to ASTM B-221. Posts shall have a 5" outside diameter with a .125" wall thickness.
- I. Aluminum Post Mechanical Properties:
1. Yield Strength (min): 35,000 PSI
  2. Tensile Strength (min): 38,000 PSI
  3. % Elongation in 2 inches: 10
  4. Modulus of Elasticity: 10 x 10<sup>6</sup> PSI
- J. Arch Posts: Arch posts shall be aluminum and shall be manufactured from 6005-T5 alloy. The arch shall be formed to a 21-in center-to-center module. The arch shall be of one continuous piece construction. There shall be no welds or additional pieces mechanically fastened to manufacture the arch. Each arch shall be designed to provide a minimum of 90 ½-in clear span from the deck to the inside of the arch at the radius peak. Arches shall be powdercoated to a specified color.
- K. Clamps: All clamps, unless otherwise noted, shall be die cast using a 369.1 aluminum alloy and have the following mechanical properties:
1. Ultimate Tensile: 47,000 PSI
  2. Yield Strength: 28,000 PSI
  3. Elongation: 7% in 2 inches
  4. Shear Strength: 29,000 PSI
  5. Endurance Limit: 20,000 PSI



6. Each functional clamp assembly shall have an appropriate number of half clamps and shall be fastened to mating parts with (2) 3/8-in x 1 1/8-in hex-pin cap screws (SST) and (2) stainless steel (SST) recessed "T" nuts. A 1/4-in aluminum drive rivet with stainless steel pin is used to insure a secure fit to the post. Hinged clamps, mounting systems bolted into one wall of the support pipe and steel clamps are not acceptable.
- L. Slides: All slides will be rotomolded from ldpe as specified and shall have full hoods with integrated handhold and sliding footers. Slides without sliding footers and using bars or pipes for hoods or having full hoods without integrated hand holds will not be accepted. All slides shall mount to the deck face. Slides mounting to the top of the deck are not acceptable. All 72-in spyro slides shall be one piece with a one-piece full hood.
- M. Activity Panels: All activity panels shall be 3/4-in thick high-density polyethylene with color throughout the thickness of the product. All graphics on activity panels shall be routed in to expose the middle color of the sandwiched two-color polyethylene. Decals and/or painted graphics are not acceptable for graphics on activity panels.
  1. Mounting: All activity panels shall be mounted to the post with a clamps system as specified and to the face of the deck with vandal proof hex pin cap screws and hex pin flange nuts. Hex pin bolts and hex nuts are not acceptable.
- N. Climbers: All climbers shall have 3/4-in thick high-density polyethylene handholds when required to limit opening from deck to 15-in width as required by ASTM. Pipe handholds or arches will not be accepted.

## 2.3 FREE STANDING SWINGS

- A. General Materials Requirements:
- B. Basis-of Design-Product: Subject to compliance with requirements, provide "Play Structure" [Model \_\_\_\_\_]; or equivalent product manufactured by: Miracle Recreation, 878 E Highway 60, Monett, MO 65708. Telephone: 888-458-2752, Web: [www.miracle-recreation.com](http://www.miracle-recreation.com)
- C. Beam & Legs:
  1. Beam: Fabricated from 2.375-in O.D. RS40 galvanized steel tubing.
    - a. Finish: ProShield,
    - b. Color: Selected by owner's representative.
  2. Legs: Fabricated from 2.375-in O.D. RS20 Galvanized steel tubing.
    - a. Finish: ProShield
    - b. Color: Selected by owner's representative.
- D. Hardware:
  1. Swing Hanger: Galvanized malleable iron hanger with oil impregnated bearings.



2. Yoke Clamp: Cast from 535.2 almag.
  - a. Finish: ProShield
  - b. Color: Selected by owner's representative
3. Double Clevis: Made from drop forged carbon steel, heat treated and zinc plated.
4. Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications). All primary fasteners shall include a locking patch type material that will meet the minimum torque requirements of IFI-125. Manufacturer to provide special tools for pinned hex fasteners.

E. Belt Seat and Chains:

1. Chain Spacer: Whit nylon, 0.080-in x 0.785-inch O.D.
2. Chain / Coated: Steel 3/16 -in straight link chain, 800 lb working load limit.
  - a. Finish: ProGuard
  - b. Color: Selected by owner's representative.
3. Belt Seats:
  - a. Molded from U.V. stabilized black EPDM rubber encapsulating a weldment comprised of a 22 GA spring stainless steel sheet, and 0.105-inch thick stainless-steel washers.
  - b. Belt seat elliptical shape measuring 7-inch wide x 26-inch long x 0.700-inch thick.
4. Bolt Link: Stainless Steel
5. Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications). All primary fasteners shall include a locking patch type material that will meet the minimum torque requirements of IFI-125. Manufacturer to provide special tools for pinned hex fasteners.

F. Concrete Footings:

1. Concrete: Provide concrete consisting of portland cement, ASTM C 150, aggregates, ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28 day compressive strength of 3,000 PSI, using at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump, and 2% to 4% entrained air.



## 2.4 PLAYGROUND PERIMETER EDGING SYSTEM

- A. Basis-of Design-Product: Subject to compliance with requirements, provide “Modular Edging System” Model 119214A, Tuff Timber Modular Edging System; or equivalent product manufactured by: Landscape Structures Inc., 601 7<sup>th</sup> Street South, Delano, Minnesota 55328-8605. Telephone: 888-574-4678, Fax: 763-972-3185, Web: [www.playlsi.com](http://www.playlsi.com)
- B. Rotationally molded from U.V. stabilized linear low density polyethylene. Galvanized stakes at 48” on center.

## 2.5 PLAYGROUND SURFACING

- A. Engineered Wood Fiber Surfacing: Material consisting solely of 100% virgin natural hardwood, free of any dirt or debris. Waste wood or pellets are not acceptable. Material to meet ASTM F2075: Standard Specification for Engineered Wood Fiber and comply with ASTM F1292.
  - 1. Engineered wood fiber to be similar to “Woodcarpet” by Zeager Recreational Surfacing, [zeager.com](http://zeager.com) (800-346-8524).

## 2.6 RUBBER WEAR MATS FOR SWINGS AND SLIDES

- A. Basis-of Design-Product: Subject to compliance with requirements, provide “Rubber Wear Mats”; or equivalent product manufactured by: Landscape Structures Inc., 601 7<sup>th</sup> Street South, Delano, Minnesota 55328-8605. Telephone: 888-574-4678, Fax: 763-972-3185, Web: [www.playlsi.com](http://www.playlsi.com)
- B. Material: Non-toxic, chlorobutyl rubber mat with double honeycomb design, 1.5" thick with minimum 3/16" wearing surface, formed in interlocking zig-zag patterns to prevent disengagement of mat and provided with aluminum ring stitching on underside of mats to hold sections together.
  - 1. Size: 3-ft x 3-ft
    - a. Under each swing provide 3-ft x 6-ft mat(s)
    - b. Under each slide end provide 3-ft x 3-ft mat
  - 2. Shrinkage: Not exceeding 2% after 14 days oven-aging at 250 degrees F.
  - 3. Weight: 3 lb./sq. ft.
  - 4. Basis of Design: Tuffturf Tiles



## PART 3 - EXECUTION

### 3.1 EXAMINATION

#### A. Verification of Conditions

1. Prior to beginning installation, examine site and existing conditions to verify that site clearing and earthwork operations, including rough and finish grading, have been completed in accordance with play structure manufacturer's requirements for proper installation of the play structure.
2. Identify to Prime Contractor any conditions that would prevent installation of play structure in accordance with manufacturer's instructions. Do not begin installation of play structure until unsatisfactory conditions have been corrected. Beginning of installation indicated acceptance of existing conditions.
3. Obtain all required construction permits for installation of playground equipment from local and/or state agencies.

### 3.2 INSTALLATION

#### A. Play Structure, Swing(s), Wear Pads:

1. Comply with play structure manufacturer's installation instructions and tolerances to insure proper functioning of all components.

#### B. Playground Surfacing:

1. Install wood fiber surfacing within entire playground perimeter edging including in fall zone areas to full depth shown on drawings and in accordance with Safety Standards noted in Section 1.05, Quality Assurance.
2. Provide drainage system as specified on drawing and/or manufacturer's installation instructions.
3. Install rubber mat surfacing in strict accordance with manufacturer's printed instructions. Secure mats to asphalt concrete base with non-corrosive nylon anchors spaced at 12-in o.c. around mat perimeter.

#### C. Testing: Provide field testing as noted in Section 1.08, Field Testing.

#### D. Adjusting, Cleaning and Protection

1. Adjust all components after completion of installation to comply with manufacturer's requirements and to provide for safe operation of all items.
2. Clean all surfaces after completion of structure installation, and provide means of preventing unauthorized access to structure until engineered wood fiber surfacing has been installed.



### 3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with the requirements for touching up shop-painted surfaces.

### 3.4 PROTECTION

- A. Protect finishes of playground equipment from damage during construction period with temporary protective coverings approved by manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 11 68 00



**SECTION 11 68 33.33 – BASEBALL / SOFTBALL ATHLETIC FIELD EQUIPMENT****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY****A. Section Includes:**

1. Baseball equipment.
2. Dugout System.
3. Dugout System Wind Screen.
4. Ball stopper system.
5. Team benches.

**B. Related Sections:**

1. Section 03 30 53 "Miscellaneous Cast-in-Place Concrete"
2. Section 31 20 00 "Earth Moving"
3. Section 32 18 23.13 "Baseball Field Surfacing"
4. Section 32 31 13 "Chain Link Fences and Gates"
5. Section 32 92 00 "Turfs and Grasses"

**1.3 REFERENCES**

- A. Comply with applicable requirements of the following standards. Where these standards conflict with the other specified requirements, the most restrictive requirements shall govern.
  1. National Federation of State High School Associations (NFSHSA).
  2. American Sports Builders Association (ASBA)
  3. Manufacture's Data and Recommended Installation Requirements.
  4. New York State Public High School Athletic Association Inc. (NYSPHSAA)

**1.4 SUBMITTALS**

- A. General: Submit all action submittals and informational submittals required by this Section concurrently.
- B. Action Submittals: Product Data for equipment, accessories and hardware:
  1. Baseball equipment.
  2. Ball stopper system.
  3. Dugout System.



4. Dugout System Wind Screen.
5. Team benches.
6. Shop Drawings: For athletic field equipment. Include plans, elevations, sections, details, and attachments to other work.
7. Samples for Initial Selection: For each type of athletic equipment indicated.
  - a. Manufacturer's color charts.

C. Closeout Submittals:

1. Maintenance Data: For athletic field equipment and finishes to include in maintenance manuals.

## 1.5 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers approved by manufacturer.

1. Modular Baseball / Softball Dugout: Installer should have a minimum of five (5) baseball/softball equipment installations or similar experience in the previous three (3) years.

B. All site amenities shall be produced in a plant of recognized reputation that is regularly engaged in the production of the type of site amenity conforming to the specified standards. Site amenities of the same type shall be the product of a single manufacture.

C. Only products proven non-toxic are acceptable. Products used may not contain any recycled wood products or any wood containing paint, chemicals (including but not limited to Chromated copper arsenate (CCA)) or additives.

D. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to the industry standards and inspection requirements.

## 1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owner's representative.

B. Sound materials shall be stored off the ground and under protective cover or indoors in a manner that will not allow distortion or other damage to occur.

C. Handle materials according to manufacturer's written instructions.

1. Materials shall be moved, loaded, and unloaded such that they will not be subject to excess stress. Permanent distortion or other damage attributable to Contractor's operation shall be cause for rejection.



## PART 2 - PRODUCTS

### 2.1 BASEBALL/SOFTBALL EQUIPMENT

- A. Breakaway Bases: Complete set of three 15 x 15 inch breakaway bases with base tops, buried base plates, and anchor housings and hardware, including digout tool, at each field.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Rogers USA Inc., Break Away Base System Teen Model RBBS-T; or comparable product as follows.
    - a. Schutt Hollywood Kwik-Release Base Set without anchors Varsity set.
- B. Low-Impact Bases with Anchors: Complete set of three compressible rubber low impact bases with stanchion, anchor, and hardware at each field.
  - 1. Basis-of Design Product: Subject to compliance with requirements, provide Hollywood Impact Base Set with Anchors or comparable product.
- C. Home Plate: One-piece rubber construction modular component home plate system with black beveled collar and non-skid surface; 5/16" thick and 3" high.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Hollywood Bury-All Home Plate or comparable product.
- D. Pitcher's Rubbers: Four-sided rubber, 4 x 4 x 18 inches in size.
- E. Basis-of-Design Product: Subject to compliance with requirements, provide Rogers USA Inc., Youth Size 4-Sided Pitcher's Rubber Model RPP-YPS; or comparable product.

### 2.2 MODULAR BASEBALL DUGOUT

- A. Components
  - 1. Overall Dimensions: Standard 8'-6" Wide x 16' Long,
  - 2. Structural Columns Fabricated of 3.5" x 3.5" x 3/16" (0.1875")
  - 3. Thick Steel Tube with Factory Pre-Drilled 9" x 9" x 1/2" (0.5")
  - 4. Thick Steel Base Mounting Plates and 9" x 9" x 3/8" (0.375")
  - 5. Thick Steel Roof and Column Cap Plates, Welded Construction Maximum Allowable Spacing Between Structural Steel Columns is Fifteen Feet (15') on Center.
  - 6. Roof Frame Fabricated of 5" x 2" x 3/16" (0.1875") Thick Steel Rectangular Perimeter and Transverse Tubes and 3" x 2" x 1/8" (0.125") Thick Steel Rectangular Longitudinal Tubes, Welded Construction.
  - 7. Maximum Allowable Roof Frame Width is 10'-6".



8. Structural Steel Columns and Roof Frame Receive a Powder Coated Primer and Finish, Various Standard and Custom Colors Available.
  - a. Color to be selected by Architect from manufacturer's full range.
9. Roofing Material is 29 Gauge, Classic Rib® Style Corrugated Metal with J-Channel Drip Cap Installed on Front and Sides, Various Standard Paint Finish Colors Available
  - a. Color to be selected by Architect from manufacturer's full range.
10. Structural Columns Attached to Roof Structure with Galvanized Hardware.
11. Chemical Anchors furnished per Division 03 Section "Miscellaneous Cast-In-Place Concrete", installed per this Section, and Lifting Eye Bolts.
12. Model Specific Hardware Kit and Installation Instructions.
13. Basis-of-Design Product: Subject to compliance with requirements, provide Sportsfield Specialties, LG-GS-08X16-130 GameShade® Lone Gone Baseball/Softball Dugout Equipment.

B. Dugout Design Criteria/Structural Loads:

1. Maximum Wind Speed Load: As indicated on Drawings.
2. Maximum Ground Snow Load: As indicated on Drawings.
3. Seismic =As indicated on Drawings.

## 2.3 DUGOUT WINDSCREEN WITH LOGO AND LETTERING

A. Description:

1. Basis-of-Design Product: Subject to compliance with requirements, provide "Vinyl Coated Polyester (VCP) – Open Mesh" windscreen (Item 21620); or equivalent product supplied by: Douglas Industries, Inc., 3441 S 11<sup>th</sup> Ave., IA 52748 Telephone: 1-800-553-8907, Web: [www.douglas-sports.com](http://www.douglas-sports.com).
2. Material Requirements.
  - a. Size: 8-ft-high chain link fence coverage. Screen to completely cover both sides and rear dugout panels in one piece.
  - b. 50% vinyl, 50% polyester
  - c. Open Mesh - 9 x 12 weave
  - d. 80% Windbreak
  - e. 7.0oz. Sq yd
  - f. 230 x 200 Tensile Strength
  - g. 3-Year limited warranty
3. Color: Coordinate with Owner regarding color selection from standard palette of available colors.



4. Graphics / Text: Provide custom lettering and/or logos as indicated in the drawings. Coordinate with Owner regarding final color / font / letter height and logo design and layout requirements.

## 2.4 BALL STOPPER SYSTEM

### A. Ground Sleeved Ballstopper System:

1. Height of System: 20' Height
2. Posts: Straight 4.0 inch OD x .125 inch wall 6061 aluminum tube and 3 ½ inch Schedule 40 aluminum pipe with cap, sized for height of system. Height above ground equal to system height plus 1 foot for hardware.
  - a. Finish: Black Powder Coated.
  - b. Spacing: 20 feet on center.
3. System for attachment of net: Block pulley and tether system with shear pin device to release net in the event of extreme weather.
4. Ground Sleeves: 4.30 inch O.D. aluminum, length 30 to 48 inch, sized for height of system with aluminum mill finish with ground sleeve cap.
5. Net / Cable: sized for height of system; #36 Black Nylon 1-3/4" mesh with tethers.
6. Hardware: Stainless steel assembly hardware; shell block pulley system; 6 inch net guide rings; black vinyl coated wire rope.
7. Basis-of Design Product: Subject to compliance with requirements, provide Sportsfield Specialties, 20' Height 4" Ball Safety Netting System with StormGuard feature, Model No. TFBSS412P-SG 4" Ball Safety Netting System (Black Powder coated).

### B. Ball Stopper System Net Storage Cart

1. 48" wide 4" square x .125 inch wall welded aluminum frame with retractable galvanized steel hitch attachment with 2" ball coupler and 12" pneumatic fixed wheel casters.
2. Provide 36" removable reel with 5,000 square foot capacity.
3. Basis-of Design Product: Subject to compliance with requirements, provide AAE Aluminum Athletic Equipment NSC-Net Storage Cart with NSC-REEL.

## 2.5 TEAM BENCHES

- A. Basis of Design Product: PTBTT 27' (LG-TTPY) Two-Tier Polyboard Team Bench, as manufactured and/or supplied by: Sportsfield Specialties, Inc., P.O. Box 231, 41155 State Highway 10, Delhi, NY 13753, Telephone: 888-975-3343, Website: [www.sportsfieldspecialties.com](http://www.sportsfieldspecialties.com)



1. Components:

- a. Welded frame fabricated with 1/8" (0.125") formed aluminum and 2" x 2" x 1/8" (0.125") square aluminum tubing.
- b. Powder-coated finish, with various standard and custom colors available.
- c. 27', or as indicated otherwise.
- d. 2" x 4" and/or 2" x 6" Polyboard seat and backrest planking material, with various standard colors available,
- e. Polyboard planking material manufactured from 90% recycled post-consumer plastic
- f. Stainless steel assembly hardware
- g. Galvanized steel anchoring hardware
- h. Semi-permanent mount required
- i. Two-Tier seating capability
- j. No on-site assembly required
- k. Model specific hardware kit and installation instructions

B. Cast-In-Place Concrete:

- 1. Materials and Properties: Comply with requirements in **Division 03 Section** "Miscellaneous Cast-in-Place Concrete" ACI 301 to produce normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 3,000 psi, 3-inch slump, and 1-inch-maximum-size aggregate.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, site surface and subgrade drainage, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Verify that athletic field layout and equipment locations comply with requirements for each type and component of equipment.

### 3.3 MODULAR BASEBALL DUGOUT INSTALLATION

A. Anchoring Requirements:

- 1. Chemical anchors furnished per Division 03 Section "Miscellaneous Cast-In-Place Concrete" to be Used in Conjunction with Factory Pre-Drilled Base Plates Mounted on Concrete Slab or Concrete Footings Determined through Delegated Design Based on Local Soil Conditions and Building Codes.



2. Minimum Requirements for Anchoring Modular Dugouts: Chemical anchors furnished per Division 03 Section "Miscellaneous Cast-In-Place Concrete", Maintain 5" Embedment into 3,000 psi Normal Weight Concrete with at Least 5" (GameShade®) or 7" (Enclosed and Cantilever) of Edge Distance to Anchor Each Base Plate.

### 3.4 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Anchor equipment securely, positioned at locations and elevations indicated.
- B. Unit Set on Grade: Level bearing surfaces to required elevation.
- C. Set with Concrete Footing: Comply with ACI 301 for measuring, batching, mixing, transporting, forming, and placing concrete.
  1. Embedded Items: Use setting drawings and manufacturer's written instructions to ensure correct installation of anchorages for equipment.
- D. Permanently Placed Equipment and Components: Rigid, level, plumb, square, and true; anchored securely to supporting structure; positioned at locations and elevations indicated on Shop Drawings; in proper relation to adjacent construction; and aligned with field layout.
- E. Semi-Permanently Placed Equipment and Components: Rigid, level, plumb, square, and true; anchored securely to supporting structure, with appropriate removable components; positioned at locations and elevations indicated on Shop Drawings; in proper relation to adjacent construction; and aligned with field layout.
  1. Bases: Install concrete filled housings on properly leveled subgrade. Install base components in compliance with manufacturer's instructions.
  2. Home Plate: Install home plate components in compliance with manufacturer's instructions.
  3. Pitcher's Rubbers: Install in compliance with manufacturer's instructions.
  4. Two-Tier Polyboard Team Bench: Install as recommended per manufacturer's written instructions and as indicated on the drawings.
- F. Removable Equipment and Components: Set in place to verify that equipment and components are complete and in proper working order. Instruct Owner's designated personnel in properly handling, assembling, adjusting, disassembling, transporting, storing, and maintaining units. Remove athletic equipment after assembled configuration has been approved by Architect, and store units in location indicated by Owner.
  1. Removable equipment includes the following:
    - a. Ball stopper system.
    - b. Batting Cages
    - c. Portable bleachers.



### 3.5 FIELD QUALITY CONTROL

#### A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections. Inform Architect 48 hours in advance when inspections are to take place.

### 3.6 ADJUSTING AND CLEANING

- #### A. Touchup Painting:
- Immediately after erection, clean bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with the requirements for touching up shop-painted surfaces.

### 3.7 PROTECTION

- #### A. Protect finishes of athletic field equipment from damage during construction period with temporary protective coverings approved by manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 11 68 33.33



## **SECTION 12 32 13 - MANUFACTURED WOOD-VENEER-FACED CASEWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes manufactured wood-veneer-faced cabinets of stock design.
- B. Section Includes
  - 1. Wood-veneer faced casework - overlay door design, including (but not limited to):
    - a. Base cabinets
    - b. Tops for all base units
    - c. Counter top assemblies
    - d. Solid Surface window sills
  - 2. Accessory items, including:
    - a. All filler panels, frame units, scribe strips, strips at walls, and similar items.
    - b. Cutouts for sinks, faucets, fittings, and other plumbing and electrical fixtures, electrical and mechanical runs and connections and similar items.
    - c. Epoxy resin countertops and sinks, drains and tail pieces
    - d. Materials and devices necessary to make solid connections to existing structure
- C. Products Furnished but not Installed Under this Section
  - 1. Mechanical components, electrical components, plumbing components and similar items included with specified casework items; refer to "Sequencing and Scheduling".

#### **1.3 DEFINITIONS**

- A. Definitions in the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" apply to the work of this Section.
- B. MDF: Medium-density fiberboard.
- C. Hardwood Plywood: A panel product composed of layers or plies of veneer, or of veneers in combination with lumber core, hardboard core, MDF core, or particleboard core, joined with adhesive and faced both front and back with hardwood veneers.



#### 1.4 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that casework can be supported and installed as indicated.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Casework.
  - 2. Hinges.
  - 3. Pulls.
  - 4. Door catches.
  - 5. Drawer slides.
  - 6. Label holders.
  - 7. Drawer and hinged door locks.
  - 8. Sliding-door hardware sets.
  - 9. Adjustable shelf supports.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show fabrication details, including types and locations of hardware. Show installation details, including field joints and filler panels. Indicate manufacturer's catalog numbers for casework.
  - 1. Roughing Drawings: Submit roughing drawings, showing complete roughing dimensions for plumbing, ventilating and electric services and components to be installed in casework, including location of existing roughing and dimensions, where applicable.
  - 2. Groups/Assemblies: Submit shop drawings of groups or assemblies, including descriptions identifying units, parts, and accessories of each item and showing materials, dimensions, cabinet-cut details, and sink locations (where applicable).
  - 3. Field Measurements: Prior to fabrication or ordering of any specified casework items, verify measurement at Site of actual space reserved for casework items; DO NOT take measurements from Contract Drawings. Give due consideration to architectural, structural, or mechanical discrepancies occurring during building construction. Make such discrepancies immediately known to Architect and obtain clarification of discrepancy in writing before proceeding with installation of affected casework items.
  - 4. Color/Finishes: Shop drawings are not to include colors, wood finishes, stains, etc. All colors are to be selected by the Architect and issued to the contractor by an ASI during the construction phase.
- C. Samples:
  - 1. Casework Units: Without cost to Owner, submit samples, as requested, to demonstrate Contractor's ability to furnish required casework.
  - 2. Color Selection: Submit actual samples of finishes, colors, and materials as required for color selection. Submit full range of manufacture colors, texture and wood tones.



## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
  - 1. Joint Tolerances 400C-T-1.
  - 2. Finishness Test 400C-T-2.
- C. Sample Warranty: For special warranty.
- D. Installer Experience Listing: Submit list of completed projects using products proposed for this Project, including owner's contact and telephone number for each project, demonstrating compliance with applicable "Qualifications" requirements specified below in "Quality Assurance" article.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish complete touchup kit for each type and finish of casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged casework finish.

## 1.8 QUALITY ASSURANCE

- A. Manufacturer: Minimum 5-years' experience in manufacture of casework and other items similar to those specified and minimum 5 completed casework installations of similar size and requirements to that specified.
- B. Installer: Minimum 5 completed casework installations of similar size and requirements to that specified.
- C. Installer Qualifications: An authorized representative who is trained and approved by manufacturer for installation of units required for this Project and a certified participant in AWI's Quality Certification Program

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver casework only after painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified in "Project Conditions" Article.
- B. Keep finished surfaces covered with polyethylene film or other protective covering during handling and installation.



#### 1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period. Maintain temperature and relative humidity during the remainder of the construction period in range recommended for Project location by the AWT's, "Architectural Woodwork Standards."
- B. Field Measurements: Prior to fabrication or ordering of any specified casework items, verify measurement at Site of actual space reserved for casework items; DO NOT take measurements from Contract Drawings. Give due consideration to architectural, structural, or mechanical discrepancies occurring during building construction. Make such discrepancies immediately known to Architect and obtain clarification of discrepancy in writing before proceeding with installation of affected casework items.
- C. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before being enclosed and indicate measurements on Shop Drawings.

#### 1.11 SEQUENCING AND SCHEDULING

- A. Coordinate the layout and installation of casework with all Prime Contractors. See Section 01 12 00 for each Contractor's coordination responsibilities.
- B. Refer to the casework model numbers for the plumbing and electrical fittings and fixtures that are shown to be part of the casework. Deliver these fittings and fixtures to the contractor assigned to their installation in Section 01 12 00. Obtain a signed receipt for their delivery.
- C. Provide all holes / cut outs in the casework for all Prime Contractors on the Project. Coordinate with the work on the E, P, & HVAC drawings and Divisions 22, 23, 26, 27, and 28.

#### 1.12 MAINTENANCE

- A. Extra Materials: Furnish complete touchup kit for each type and color of wood laboratory casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged laboratory casework finish.

#### 1.13 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Delamination of components or other failures of glue bond.
    - b. Warping of components.
    - c. Failure of operating hardware.
    - d. Deterioration of finishes.



2. Contractor's Guarantee: Upon completion of installation of casework and after acceptance by Owner, furnish to Owner written statement accepting full responsibility for installation and guaranteeing adequacy and safety of attachment of all casework.
3. Warranty Period: Five years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide "Signature Series Wood Casework – Contemporary Full Overlay" by Kewaunee Scientific Statesville, NC or comparable product by one of the following:
  1. Wood-Metal Industries.
  2. Sheldon Laboratory Systems.
- C. Source Limitations: Obtain wood-veneer-faced casework with tops, sinks, special equipment, and service fixtures from same casework supplier to establish single responsibility for all casework components.

### 2.2 CASEWORK, GENERAL

- A. Quality Standard: Unless otherwise indicated, comply with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards" for grades of casework indicated for construction, finishes, installation, and other requirements.
  1. Grade: Premium
  2. Provide labels and certificates from AWI certification program indicating that casework, including installation, complies with requirements of grades specified.
- B. Product Designations: Drawings indicate sizes, configurations, and finish materials of manufactured wood-veneer-faced casework by referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes and door and drawer configurations, of same finish materials, and complying with the Specifications may be considered. See Section 01 60 00 "Product Requirements."
- C. Product Designations: Drawings indicate configurations of manufactured wood-veneer-faced casework by referencing designations of Casework Design Series numbering system in Appendix A of the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."



## 2.3 WOOD-VENEER-FACED CABINETS

### A. Design:

1. Contemporary full-overlay wood edges.

### B. Wood Species: White Maple.

### C. Face Veneer Cut: Grade AA Plain sliced

### D. Veneer Matching:

1. Provide veneers for each cabinet from a single flitch, book and running matched.
  - a. Provide continuous matching of adjacent drawer fronts within each cabinet.

### E. Grain Direction:

1. Vertical on doors, horizontal on drawer fronts.
2. Lengthwise on face frame members.
3. Vertical on end panels.
4. Side to side on bottoms and tops of units.
5. Vertical on knee-space panels.
6. Horizontal on aprons.

### F. Exposed Materials:

#### 1. Plywood:

- a. Maple Plywood: White Maple, Grade AA, rotary cut, book matched, cross-banded, with solid hardwood core.

- 1) 1/4 inch: Minimum 3-ply.
- 2) 3/4 inch: Minimum 7-ply.

- b. Other Hardwood Plywood: Sound grade; cross-banded, with solid hardwood core.

- 1) 1/4 inch: Minimum 3-ply.
- 2) 3/4 inch: Minimum 7-ply.

2. Solid Wood: Clear hardwood lumber of species indicated and selected for grain and color compatible with exposed plywood.

### G. Semiexposed Materials:

1. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects, of same species as exposed wood.
2. Plywood: Hardwood plywood of same species as exposed wood. Provide backs of same species as faces.



3. Provide solid wood or hardwood plywood for semi-exposed surfaces unless otherwise indicated.
  4. Hardboard: Use only for cabinet backs where exterior side of back is not exposed.
- H. Hardboard: Full tempered 2 sides, consisting of steam-exploded wood fibers, highly compressed into hard, dense 1/4-inch thick homogeneous sheet using natural resins and other added binders; providing following physical properties:
1. Modulus of Rupture:.....5,000 PSI
  2. Density:.....56 PCF
  3. Internal Bond: .....100.0 PSI
- I. Particleboard: Industrial grade meeting or exceeding CS 236-66 and ASTM D1037 with following physical properties:
1. Density:.....47 PCF (+10 percent)
  2. Interior Bond:.....60 PSI
  3. Modulus of Elasticity:.....400,000 PSI
  4. Modulus of Rupture:.....2,400 PSI
  5. Screw Holding Power - Face: ....225 lbs.
  6. Screw Holding Power - Edge:....200 lbs

## 2.4 MATERIALS

- A. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.
- B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated
- C. Marine Grade Hardwood Plywood: typical for all countertop applications.
- D. Softwood Plywood: U.S. Department of Commerce (DOC) PS 1.
- E. Particleboard: ANSI A208.1, Grade M-2
- F. MDF: ANSI A208.2, Grade 130
- G. Hardboard: ANSI A135.4, Class 1 Tempered.
- H. Edge banding: Minimum 1/8-inch- thick, solid wood of same species as face veneer
  1. Select wood edge banding for grain and color compatible with face veneers.
  2. Colors: As selected by Architect from manufacturer's full range.
- I. Countertop Solid surface material: Provide countertops with the following front and backsplash style: 1/2-inch thick, solid surface material Splashes: 1/2-inch thick, solid surface material. Fabrication: Fabricate tops in one piece on marine grade plywood with shop-applied edges unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing. Solid Surface Material: Homogeneous solid sheets of filled plastic resin complying with ANSI SS1, Class A.
  1. Fabricate with loose splashes for field assembly.



2. Adhesives: Adhesives shall not contain urea formaldehyde.
3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Hanex Solid Surfaces.
  - b. Corian
  - c. Formica Corporation.
  - d. Wilsonart International.
4. Colors and Patterns: As selected by Architect from manufacturer's full range.

J. Solid Surface window sills and aprons:

1. Solid-Surfacing Material Thickness: 1/2-inch.
2. Fabrication: Fabricate stools and aprons in one piece, unless otherwise indicated. Comply with solid-surface-material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing
3. Adhesives: Adhesives shall not contain urea formaldehyde.
4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Hanex Solid Surfaces
  - b. Corian
  - c. Formica Corporation
  - d. Wilsonart International
5. Colors and Patterns: As selected by Architect from manufacturer's full range.

## 2.5 FABRICATION

A. Base Cabinet Construction:

1. Tops: Horizontal frame with pinned mortise and tenon joints; joined to cabinet side with 8-mm hardwood dowels on 32-mm centers. Includes 1-1/8-inch thick x 1-3/4-inch deep front rail with 3/4-inch thick x 1-1/4-inch deep side rails and 3/4-inch thick x 1-3/4-inch deep back rail.
2. Divider Under Drawers: 3/4-inch thick x 2-1/4-inch deep front cross rail, secured to cabinet sides with 8-mm hardwood dowels on 32-mm centers. On all-drawer cabinets where locks are indicated, hardboard panel fitted in intermediate horizontal frame and placed between drawers to prevent access to other drawers.



3. Bottoms: 3/4-inch thick 7-ply hardwood plywood, let into 1-1/8-inch thick x 1-3/4-inch deep bottom rail and jointed to cabinet sides with 8-mm hardwood dowels on 32-mm centers.
4. Sub-Base: Separate and continuous (no cabinet body sides-to-floor), water resistant exterior grade plywood with concealed fastening to cabinet bottom. Ladder-type construction of front, back and intermediates to form a secure and level platform to which cabinets attach.
5. Tops, Dividers Under Drawers, and Bottoms: Securely glued and screwed under pressure to sides at assembly to ensure joint integrity and squareness.
6. Sides: 3/4-inch thick 7-ply hardwood plywood, faced with selected hardwood veneer for exposed surfaces and unselected but sound veneers for unexposed surfaces. Includes 3/8-inch thick hardwood nosing applied to exposed front edge of cabinet side. Where adjustable shelves required by specified manufacturer's catalog numbers, sides bored with 5 mm holes.
7. Backs: 1/4-inch thick tempered hardboard secured to cabinet top and bottom and dadoed into cabinet sides. Backs recessed 5/16-inch to permit accurate scribing to wall.
8. Removable Backs: Where indicated by specified manufacturer's catalog numbers, backs retained in vertical cleats secured to cabinet sides to provide tight joints and convenient access to plumbing.
9. Shelves: 1-inch thick 9-ply hardwood plywood with 3/8-inch solid lumber edge band front edges. Additional support provided at rear of cabinets 36 inches and wider.
10. Toe Space: 4-inches high x 3-1/4-inches deep with 3/4-inch thick x 4-inch high toe board, joined between cabinet sides with 8 mm hardwood dowels.
11. Drawers – Contemporary Full Overlay – Maple:
  - a. Drawer Face: 3/4-inch thick solid lumber core, faced with selected hardwood veneer.
  - b. Sides and Back: 1/2-inch thick solid hardwood; dovetailed at front and rear.
  - c. Bottoms: 1/4-inch thick tempered hardboard fitted and secured into grooves in drawer face, sides and back.
  - d. Interior Finish: Sealed and varnished to resist absorption.
  - e. Slides: Side mount, epoxy-coated drawer slides, providing at least 100 lbs load capacity and incorporating positive stops. Provide progressive type slide with minimum 100 lbs load capacity for file drawers.



B. Wall Cabinet Construction:

1. Tops and Bottoms: 3/4-inch thick 7-ply hardwood plywood, let into 1-1/8-inch thick x 1-3/4-inch deep top and bottom rail and joined to cabinet sides with 8 mm hardwood dowels on 32 mm centers. Securely glued and screwed under pressure at sides to assembly to ensure joint integrity and unit squareness.
2. Sides: 3/4-inch thick 7-ply hardwood plywood, faced with selected hardwood veneer on exposed surfaces and unselected but sound veneer on unexposed surfaces. 3/8-inch thick hardwood nosing applied to exposed front edge of cabinet side. Where adjustable shelves required, 5 mm holes bored in sides on 32 mm centers.
3. Backs: 1/4-inch thick tempered hardboard secured to cabinet top and bottom, dadoed into cabinet sides, and recessed 5/16-inch to permit accurate scribing to wall.
4. Shelves: 1-inch thick 9-ply hardwood with 3/8-inch thick hardwood nosing on front edge. Shelves in 36-inch and wider cabinets include additional support at rear.

C. Cases:

1. Tops and Bottoms: 3/4-inch thick 7-ply hardwood plywood let into 1-1/8-inch thick x 1-3/4-inch deep top and bottom rail and joined to cabinet sides with 8 mm hardwood dowels on 32 mm centers. Tops and bottoms securely glued and screwed under pressure to sides at assembly to ensure joint integrity and unit squareness.
2. Sides: 3/4-inch thick 7-ply hardwood plywood, faced with selected hardwood veneer on exposed surfaces and unselected but sound veneers on unexposed surfaces. 3/8-inch thick hardwood nosing applied to front edge of cabinet side. When adjustable shelves required, 5 mm holes bored in sides.
3. Backs: 1/4-inch tempered hardboard secured to cabinet top and bottom, dadoed into cabinet sides, and recessed 5/16-inch to permit accurate scribing to wall.
4. Shelves: 3/4-inch thick 7-ply hardwood with 3/8-inch thick hardwood nosing on front edge. Shelves in 36-inch and wider cabinets include additional support at rear.
5. Toe Space: 4-inches high x 3-1/4-inches deep with 3/4-inch thick x 4-inch high toe board, joined between cabinet sides with 8 mm hardwood dowels.

D. Doors

1. Contemporary Full Overlay – Maple:
  - a. Base and Wall Cabinets: 3/4-inch thick solid core, banded on all edges and faced with selected hardwood veneer.
  - b. Tall Cases: 1-1/8-inch thick solid lumber core, banded on all edges and faced with selected hardwood veneer.



2. Hinged Glazed Doors: 1-1/8-inch thick x 2-3/4-inch wide heavy selected hardwood frame fitted with 1/4-inch tempered glass and equipped with same carriers specified for solid case doors above.
  - a. Wall and Base Cabinets: 3/4-inch thick x 2-3/4-inch wide selected hardwood frame fitted and equipped as specified for “Hinged Glazed Doors” above.
- E. Filler Strips: Provide as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets.

## 2.6 FINISH

- A. Wood Finishes: Varnish providing tough, hard properties to withstand most severe conditions and staining agents imparting clean, translucent appearance to wood substrate and enhance and improve natural graining in face without suggestion of masking or hiding. Finished film provides mellow, smooth texture.
  1. Surface Preparation: All surfaces thoroughly sanded with fine abrasive not coarser than 3/0 Garnet finishing paper, achieving absolute cleanliness before finishing coat application. All wood flour and abrasive particles removed with dry compressed air and all areas wiped with tack rag.
  2. Sealing: Synthetic resin based sealer applied to all surfaces of drawer, cabinet doors, exposed surface and other small sections where complete sealing of edges necessary to prevent moisture absorption. Remainder of cabinet sprayed with sealer after application to specific surfaces. Sealer air-dried within 20 minutes to permit light scuff sanding with 5/0 Garnet finishing paper and subsequently thoroughly dusted.
  3. Stain: Pigmented stain consisting of non-fading and non-bleeding colors, ground in suitable vehicle, permitting blending in proportions required to produce color selected by Architect from manufacturer’s full range of standard and custom colors.
  4. Top Coat: Varnish consisting of moisture of chlorinated polymers and co-polymers suitably compounded with oil modified alkyd resin and other resinous plasticizers in solution of aromatic and oxygenated solvents. Produces cured film gloss with range of 40-50 measured by 60-degree gloss meter. Rubbed effect accomplished by inorganic flattening agent and acid catalyst added prior to spraying to convert film to cured state. Thorough sanding of previous coating provided to promote inter-coat adhesion with careful dusting to remove all powdered finish and abrasive prior to final coating.
  5. Chemical Resistance Properties –Oak Wood Veneer Casework
    - a. Spot Test to Evaporation
      - 1) Boiling Water.....No effect
      - 2) Ethyl Alcohol.....No effect
      - 3) Isopropyl Alcohol.....No effect
      - 4) Methyl Alcohol.....No Effect
      - 5) Xylol.....No effect
      - 6) Toluol.....No effect



- 7) Naptha.....No effect
- 8) Gasoline .....No effect
- 9) Methyl Ethyl Ketone.....No effect
- 10) Acetone .....No effect
- 11) Chloroform.....No effect
- 12) Formaldehyde .....No effect
- 13) Ink .....No effect

b. Spot Test for One Hour

- 1) 25 percent Sulfuric Acid .....No effect
- 2) 70 percent Sulfuric Acid .....Film destroyed
- 3) 20 percent Hydrochloric Acid (5 min.).....No effect
- 4) 37 percent Hydrochloric Acid.....Very slight ring & stain
- 5) 50 percent Nitric Acid.....Film destroyed
- 6) 10 percent Sodium Hydroxide .....No effect
- 7) 29 percent Ammonia.....No effect
- 8) Iodine .....Slight stain
- 9) Lipstick .....No effect
- 10) Crayon.....No effect
- 11) Catsup .....No effect
- 12) Butter.....No effect
- 13) Oleo.....No effect
- 14) Mustard .....No effect
- 15) Grape Juice.....No effect
- 16) Coke or Pepsi Cola.....No effect
- 17) Vinegar.....No effect
- 18) Milk.....No effect

- c. Adhesion and Toughness: Attempts to separate various finish layers from each other and from wood with razor blade or sharp knife are extremely difficult or results in no separation of various layers.

## 2.7 CASEWORK HARDWARE AND ACCESSORIES

- A. Hardware, General: Unless otherwise indicated, provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware.

- 1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard, except where hardware is through bolted from back side.

- B. Butt Hinges: Wrap-around type, 5-knuckle pin, heavy-duty institutional type with rounded ends, finished in either brushed chrome or black as directed by Architect and concealing hinge screws when door closed.

- 1. Lipped Construction: 2-1/2-inches high x 0.072-inch thick.
- 2. Offset kitchen cabinet type, plain butt hinges or hinges with removable pins not acceptable.
- 3. 2 hinges provided on doors less than 44 inches high; 3 hinges provided on doors 44 inches high and higher.



- C. Pulls: Solid stainless-steel wire pulls, fastened from back with two screws. Provide two pulls for drawers more than 24 inches wide.
- D. Door Catches: Nylon-roller spring catch or dual, self-aligning, permanent magnet catch. Provide two catches on doors more than 48 inches high.
- E. Drawer Slides: BHMA A156.9, Type B05091.
  - 1. Standard Duty (Grade 1, Grade 2, and Grade 3): Side mounted and extending under the bottom edge of drawer; zinc-plated epoxy-coated steel with polymer rollers.
  - 2. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted and extending under the bottom edge of drawer; full-overtravel-extension type; zinc-plated, steel ball-bearing slides.
  - 3. Box Drawer Slides: Grade 1HD-100, for drawers not more than 6 inches high and 24 inches wide.
- F. Drawer and Hinged Door Locks: Cylindrical (cam) type, five-pin tumbler, brass with chrome-plated finish, and complying with BHMA A156.11, Grade 1. Each room is to be keyed and master keyed.
  - 1. Provide a minimum of two keys per lock and six master keys.
  - 2. Provide locks on all doors and drawers.
- G. Adjustable Shelf Supports: Two-pin-locking plastic shelf rests complying with BHMA A156.9, Type B04013.
- H. Countertop Support: type and style as called out on drawings.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of framing and reinforcements, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

### 3.2 CASEWORK INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Install casework level, plumb, and true; shim as required, using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.



- C. Utility-Space Framing: Secure to floor with two fasteners at each frame. Fasten to partition framing, wood blocking, or metal reinforcements in partitions and to base cabinets.
- D. Base Cabinets: Adjust top rails and subtops within 1/16 inch of a single plane. Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions with fasteners spaced not more than 24 inches o.c. Fasten adjacent cabinets together with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of 1/16 inch.
  - 1. Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 24 inches o.c. and at sides of cabinets with not less than 2 fasteners per side.
- E. Wall Cabinets: Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 24 inches o.c. Align similar adjoining doors to a tolerance of 1/16 inch.
- F. Fasten cabinets to adjacent cabinets and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWT's, AWMAC's, and WI's "Architectural Woodwork Standards."
- G. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- H. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

### 3.3 CLEANING

- A. Repair or remove and replace defective work as directed on completion of installation.
- B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- C. Protect countertop surfaces during construction with 6-mil plastic or other suitable water-resistant covering. Tape to underside of countertop at minimum of 48 inches o.c.

END OF SECTION 12 32 13



**SECTION 12 61 00 - FIXED AUDIENCE SEATING****PART 1 - GENERAL****1.1 SUMMARY**

- A. Seating to be provided by owner.

**1.2 COORDINATION**

- A. Seating Contractor to provide coordination with other trades.

**1.3 PREINSTALLATION MEETINGS**

- A. Pre-installation Conference: Conduct conference at Project site.

**1.4 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For fixed audience seating to include in operation and maintenance manuals.
  - 1. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:
    - a. Maintenance of self-rising seat mechanisms and other operating components.
    - b. Adjustment of self-rising seat mechanisms to align seats.
    - c. Maintenance of electrical components, devices, and accessories.
    - d. Methods for maintaining upholstery fabric.
    - e. Precautions for cleaning materials and methods that could be detrimental to seating finishes and performance.

END OF SECTION 12 61 00