
Hastings-on-Hudson Village Hall
Phase 3: Roof Replacement
7 Maple Avenue
Hastings-on-Hudson, NY 10706

Specifications and Bid Requirements
October 31, 2022



Architect:
Easton Architects, LLP
20 West 44th Street, Suite 604
New York, NY 10036
212-779-9570

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NOTICE TO BIDDERS

The Village of Hastings on Hudson hereby invites the submission of sealed proposals

For:

**Request for Proposals
Roof Replacement (Phase 3)
for Village Hall in the Village of Hastings-on-Hudson**

Proposals will be received until 10 A.M. on:

Date

January 6th, 2023

By:

Anthony Costantini

Village Clerk

7 Maple Avenue

Hastings-on-Hudson, NY 10706

The scope of work includes full roof replacement and select masonry restoration at Village Hall in the Village of Hastings-on-Hudson, and will be made available beginning on **Friday, November 4th, 2022** online at <https://www.hastingsgov.org/village-clerk/pages/legal-public-notice> or by sending an email to the Village Clerk at acostantini@hastingsgov.org.

In addition to the above, the Village of Hastings-on-Hudson has partnered with BidNet as part of the Empire State Purchasing Group and will post our bid opportunities and any addendums to this site. As a vendor, you can register with Empire State Purchasing Group and be sure that you see all of the Village's available bids, addendums, and opportunities. Detailed plans and specifications for said bid may be obtained through the Empire State Purchasing Group at the following link: www.bidnetdirect.com/new-york/hastings-on-hudson

Proposals will be opened **January 6th, 2023 at 10 A.M.**

Awards will be made at a meeting to be held at a later date.

Clearly label your package:

**Roof Replacement (Phase 3)
for Village Hall in the Village of Hastings-on-Hudson**

The Village of Hastings-on-Hudson reserves the right to reject any or all proposals.

A mandatory pre-bid walkthrough is scheduled on **Wednesday, November 30th, 2022 at 11am.**

Interested Consultants may submit questions in writing to villagemanager@hastingsgov.org up to **5:00 PM on Monday, December 19th, 2022.**

Answers will be posted online at <https://www.hastingsgov.org/village-clerk/pages/legal-public-notice> in the [appropriate Bid Document file](#) and distributed to all known bidders by **5:00 P.M. on Thursday, December 22nd, 2022.**

INSTRUCTIONS TO BIDDERS

1. Bids must be submitted on the attached set of forms. (Do not separate these sheets).
2. Each Bidder must state that no employee or member of the Village, and no spouse of such employee or member, is directly or indirectly interested in the proposal.
3. The proposal is to be enclosed and sealed in an envelope marked with the name of the bidder and "Bid for: **Roof Replacement (Phase 3)**" Or submitted electronically via BidNet at:
www.bidnetdirect.com/new-york/hastings-on-hudson

Proposals must be received by:

Anthony Costantini
Village Clerk
7 Maple Avenue
Hastings-on-Hudson, NY 10706

By **10:00 A.M. on Friday, January 6th, 2023** and will not be considered if submitted on other than the attached form bid. Bids will be opened at a time to be determined by the Owner.

NAME OF BIDDER:

ADDRESS OF BIDDER:

SIGNATURE OF AUTHORIZED OFFICER:

TITLE: _____

DATE: _____

TELEPHONE: _____

Project Summary

The Village of Hastings-on-Hudson, NY (the “Village”) is soliciting bids from qualified construction firms to complete the roof replacement and select masonry restoration at the Village Hall, located at 7 Maple Avenue, Hastings-on-Hudson, NY 10706.

Scope of Work

The Scope of Work includes the following items:

1. An asbestos inspection and testing were performed on the property by advanced environmental corp. And asbestos-containing materials were identified in the roof membrane and flashing as indicated in the report dated March 17, 2022, which is available to the contractor(s) to review. The contractor is responsible for coordinating the removal of all asbestos-containing materials and for securing all necessary permits and waivers to complete the work as scheduled. All work shall be performed in accordance with all the rules and regulations governing the removal of asbestos-containing materials as directed by the EPA, OSHA, and NYS laws. All asbestos abatement work is to be performed by a licensed, qualified abatement contractor.
2. Given the age of the property on which work is to be performed, all paint finishes are assumed to contain detectable amounts of lead. All lead-based paint shall be removed in accordance with the rules and regulations governing the removal and containment of lead-based paint as directed by the EPA, OSHA, and NYS laws. All lead-based paint removal work is to be performed by a licensed, qualified contractor.
3. Remove and dispose of existing roofing assembly at main roof, including the ballast, rigid insulation, fabric mesh, membranes and flashings down to existing substrate (Allowance = 4,400 sf + 830 = 5,280 sf).
4. Remove and dispose of existing roofing assembly at portico roof, including membrane, flashing, and plywood substrate (Allowance = 510 sf + 102 = 612 SF). Existing tongue-and-groove decking to be removed and salvaged for reinstallation.
5. Remove and dispose of two (2) existing roof drain bodies and covers (drains to remain in existing locations).
6. Remove and dispose of existing stucco coating system at inboard face of all parapet walls (Allowance = 1360 sf + 270 = 1630 sf).
7. Remove and dispose of existing roof hatch and access ladder.
8. Scarify existing concrete roof slab. (allowance for 2” depth = 5,280 sf . Skim coat surface (100%). Build up skim coat as necessary to provide positive pitch to roof drains.
9. Repair structural slab at locations indicated in plan. In prior probe locations, cut openings to achieve straight and orthogonal edges, anchor formwork to slab, dowel in reinforcing at all sides of cut opening, and pour new concrete to match existing in depth.
10. Rebuild interior wythe of parapet masonry: disassemble damaged and deteriorated brick masonry units at interior wythe of parapet after stucco removal is complete. Rebuild interior wythe with new brick masonry units to match existing in color, profile, dimension, and bond pattern (allowance = 100%).
11. Remove and reinstall existing cast stone coping units at existing parapets and install new saw-tooth copper flashing prior to reinstallation.
12. After removal of inner wythe of brick at the existing parapets, prepare, prime and paint steel dunnage. Install Kemper cold-fluid applied flashing and infill to close.
13. Prepare, prime and paint existing steel dunnage in its entirety.
14. Provide and install pipe curb assemblies and caps for future use.
15. Provide and install new Kemper cold-fluid applied roofing membrane system and flashing at main and portico roofs (Allowance = 5,892 sf).
16. Provide and install (2) new cast iron combination roof drains and overflows with covers, including domes, elbows, and connections as indicated on the drawings.

17. Provide and install (2) new through-wall copper sleeves at existing scuppers. Flash scuppers fully with Kemper cold-fluid applied flashing
18. Provide and install new two-piece copper counter-flashing at parapet walls with newly cut reglet at second masonry wythe to be secured at joint above historic through-wall copper flashing with lead wedges.
19. Provide new roof hatch with new curb and integral flashing. Provide and install new OSHA compliant access ladder.

Environmental Considerations

1. The Village is committed to reducing greenhouse gas emissions from direct and indirect activities and to the acquisition of supplies and services that promote a clean energy economy. This contract requires use of products to the maximum extent possible that meet or exceed the ENERGY STAR program or Federal Energy Management Program guidelines as applicable and the use of electric powered tools where feasible and effective.

Schedule and Logistics

1. Contractor shall provide the Owner (Village Manager) with a complete Schedule of Logistical Events for the duration of the project, including anticipated start and completion dates.
2. Contractor shall provide the Owner with a complete Project Coordination Plan for the duration of the project, including locations for storage of materials, transport of materials, etc. as directed by Owner.
3. The foregoing schedules and plans are subject to approval by the Owner, prior to commencement of construction.
4. The Contractor shall be solely responsible for the protection of conditions and materials within, and adjacent to the proposed construction area. The Contractor shall design and install adequate shoring and bracing for all construction or removal tasks. The Contractor shall have sole responsibility for any damage or injuries caused by, or during the execution of the work.
5. In addition to the above, the Contractor is responsible for the following Inspection Schedule as laid out by the Building Inspector
 - a. Filing a non-fee building permit
 - b. Pre-work inspection, including site safety and protection
 - c. Final inspection

Safety Plan

1. General: All work to be done in accordance with regulations of all agencies having jurisdiction.
2. Structural: Contractor is to provide adequate temporary bracing and shoring wherever any structural work is involved.
3. Means of Egress: All existing means of egress for occupants of the building to be maintained clear and free of all obstructions, such as building materials, tools, etc.
4. Fire Safety: All building materials stored in construction area, and/ or in any area of the building are to be secured in a locked area. Access to such areas to be controlled by Owner and/ or Contractor.
5. Dust Control: Debris, dirt, and dust to be kept to a minimum and shall be confined to the immediate construction area and be cleaned up and cleared from building periodically to avoid excessive accumulation.
6. Noise After Hours: Construction operations will be confined to working hours as described below.

After-hours Work

The Contractor shall coordinate with Owner for any work that shall occur outside normal working hours: 7:30 A.M. to 8 P.M., Mondays through Saturdays, and 9 A.M. to 5 P.M., Sundays, except legal holidays.

Payment Schedule

The Contractor shall submit an itemized Application for Payment for work completed to the Architect not later than the First day of each month during the course of the Work. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. The Architect will issue Certificates of Payment for completed work to the Village Manager not later than the Tenth day of each month and Payment shall be issued within Thirty days of the Village Manager's receipt of each Certificate.

Deliverables

The Village reserves the right to request additional information from any proposing Contractor or firm. The Village may contact and evaluate the Contractor's/firm's and subcontractor's references; contact any Contractor/firm to clarify any response; contact current users of the Contractor's/firm's services' and seek and review any other information deemed pertinent to the evaluation process.

The Contractor/firm shall provide one (1) electronic copy incorporated in a single PDF file for review. The electronic copy shall be submitted as a single .pdf file in the Contractor's/firm's name via: www.bidnetdirect.com/new-york/hastings-on-hudson.

A physical copy may be mailed to:

Anthony Costantini
Village Clerk
Municipal Building
7 Maple Avenue
Hastings-on-Hudson, NY 10706

General Requirements

The proposal must contain all of the following information in the same sequence as presented in this RFB. Each proposal should provide a straightforward and concise presentation adequate to satisfy the requirements of this RFB.

All proposals will include the following requirements:

Contractor/Firm Profile

The profile shall include the Contractor's/firm's background, philosophy, location of office/offices from which the work on this project is to be performed.

Experience

Present relevant experience on similar projects. Provide a limit of four (4) projects for the Experience presentation. Include:

1. Location;
2. Description and size (sketches, plans, photographs);
3. Project Cost;
4. Client;
5. Sub-contractors;
6. Experience of the firm members submitting the proposal;
7. List of Client and Contractor contacts (with telephone numbers and email addresses) who are familiar with the projects.

Proposal Presentation

Include any additional graphic illustration, photographs, articles, or other information that the Contractor/firm feels is relevant to the proposal.

Additional

Any other work to complete the construction work not specifically listed in the RFB should be detailed in the proposal. Any work that is in addition to the items listed in the RFB should be indicated as Additional Alternatives with the cost associated. The cost for the Additional Alternatives should not be included in the final proposal sum and will be approved by the Village separately.

Sub-contractors

The selected Contractor/firm will coordinate all contract activities between the Contractor/firm and sub-contractors as well as ensure that the project work is completed on schedule and within budget. It is the responsibility of the selected Contractor/firm to inform the Village Manager and Easton of any discrepancies between the proposal and the execution.

Insurance

The Contractor/Subcontractor shall purchase and maintain insurance of the following types of coverage and limits of liability:

- 1) Commercial General Liability (CGL) coverage with limits of Insurance of not less than \$1,000,000 Per Occurrence/\$2,000,000 Annual Aggregate and including a Waiver of Subrogation.
 - a) If the CGL coverage contains 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, product-completed operations, and personal and advertising injury, blanket contractual including injury to subcontractors employees.

Note: c) The Village of Hastings-on-Hudson and their agents, officers, directors, and employees shall be included as additional insured on the CGL, using ISO Additional Insured Endorsement CG 20 10 1185 or an endorsement providing equivalent or broader coverage to the Village of Hastings-on-Hudson and their agents, officers, directors and employees. The coverage must be underwritten by an Insurance Company with at least 'A 7' Best rating as defined by A.M. Best. Coverage for the

additional insured shall apply as Primary and Non-Contributing Insurance before any other insurance or self-insurance, include any deductible, maintained by, or provided to, the additional insureds.

- d) Contractor/Subcontractor shall maintain CGL 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 at least 2 years after completion of the Work.
 - e) XCU may not be excluded.
- 2) Automobile Liability
- a) Business Auto Liability with limits of at least \$1,000,000 each accident.
 - b) Business Auto coverage must include coverage for liability arising out of all owned, leased, hired and non-owned automobiles.
 - c) The Village of Hastings-on-Hudson and their agents, officers, directors, and employees shall be included as additional insured on the auto policy.
 - d) Also needs to include waiver of subrogation
- 3) Workers Compensation and Employers Liability and N.Y.S Disability
- a) Statutory Workers' Compensation, Employers' Liability and N.Y.S. Disability Benefits Insurance for all employees.
 - 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.
 - d) Workers Compensation must include a waiver of subrogation.

NOTE: ACORD forms are not acceptable proof of workers compensation coverage; must provide C-105.2 and Disability to be provided on DB-120.1.

- 4) The Contractor shall not sublet any part of his work without written approval of the Village of Hastings-on-Hudson, and without assuming full responsibility for requiring similar insurance from his subcontractors and shall submit satisfactory evidence to that effect to the Village of Hastings-on-Hudson. Each such insurance policy, except the Workers' Compensation and Disability policies, shall include The Village of Hastings on Hudson and their agents, officers, directors, and employees as an additional insured.
- 5) Policy shall be endorsed to provide that 30 days written notice prior to cancellation be given to the Village of Hastings-on-Hudson. Policies that lapse and/or expire during the term of occupancy shall be re-certified and received by Village of Hastings-on-Hudson no less than 30 days prior to cancellation or renewal.

- 6) Contractor acknowledges that failure to obtain such insurance on behalf of the Village of Hastings-on-Hudson constitutes a material breach of contract and subjects it to liability for damages, indemnification and all other legal remedies available to the Village of Hastings-on-Hudson. The contractor/permittee is to provide the Village of Hastings-on-Hudson with a certificate of insurance, evidencing the above requirements have been met, prior to the commencement of work or use of facilities. The failure of the Village of Hastings-on-Hudson to object to the contents of the certificate or absence of same shall not be deemed a waiver of any and all rights held by the Village of Hastings-on-Hudson.

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 not be less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. The prime contractor shall obtain a Prevailing Rate Schedule from the: New York State Department of Labor, Bureau of Public Work, Sate Office Campus, Bldg. 12, Albany, NY 12240. The prime contractor must provide copies of this schedule to all subcontractors and obtain an affidavit certifying such schedule was received.

Bid Security

Each Bidder is required to deposit at the time of submission of their bid, a Bid Bond or certified check in an amount representing five (5%) percent of their bid payable to the Village, which amount the Bidder agrees is to be forfeited as liquidated damages and not as a penalty if in case he is awarded the Contract and he shall thereafter fail to execute a Contract with the Village under the conditions of this Proposal or to furnish the bonds required for the faithful performance of this Contract. Bidders who submit certified checks must accompany them with a Consent of Surety from a recognized Bonding Company agreeing to supply a Performance Bond and Labor and Materials Bond if the Contract is awarded to the Bidder.

Such bid security will be returned to all except the three lowest formal Bidders within three days after the formal opening of bids, and the remaining bid security will be returned to the other Bidders after the Village and the accepted Bidder have executed the Contract Documents. In the event no Contract has been so executed within forty-five (45) calendar days after the date of the opening of bids, upon the demand of the Bidder, so long as he has not been notified of the acceptance of his bid, his bid security will be returned. The Bid Security of the successful Bidder will be retained until the signing of Agreement, the filing and approval of the bonds and insurance.

Security for Faithful Performance

The Contractor shall, prior to execution of the Contract and within fourteen (14) calendar days after the Notice of Intent to Award, submit two separate executed bonds with Power of Attorney, (1) a Performance Bond in an amount equal to one hundred percent (100%) of the accepted bid as security for the faithful performance of the terms, covenants and conditions of the Contract; (2) a Labor and Material Payment Bond for the full amount of the Contract price guaranteeing the full payment of all persons performing labor or furnishing material or rentals, under the Contract; and (3) a Certificate of Insurance.

At the time of final payment, the Contractor shall provide a two (2) year maintenance bond guaranteeing against defective materials and workmanship but excluding survival of the landscaping, in an amount equal to one hundred (100%) percent of the contract amount and shall submit the completed General Release form

stating that all obligations incurred by the Contractor in carrying out this Agreement have been satisfied including wage and costs of subcontractors, equipment and materials.

Sales Tax Exemption

Under Chapter 513 of the Laws of New York 1974, all materials and supplies sold to a Contractor and which are to become an integral, component part of a structure, building or real property owned by an exempt organization such as the municipality, are exempt from the payment of New York State Sales or compensatory use taxes. Therefore, the Contractor should not include any amount in its bid price to cover sales taxes for the above items.

PROPOSAL
ROOF REPLACEMENT (PHASE 3)
FOR VILLAGE HALL IN THE VILLAGE OF HASTINGS-ON-HUDSON

To:
Village Hall
Village of Hastings-on-Hudson
7 Maple Avenue
Hastings-on-Hudson, NY 10706

Bid Submitted By:

(Name) _____

(Address)

(Telephone Number)

1. I/We do hereby declare that I/We have carefully examined the Contract Documents relating to the above entitled matter and the work, and have also examined the site. I/We am familiar with all of the requirements of the Documents and existing conditions relative to the execution of this Work.
2. I/We do hereby offer and agree to furnish all materials, to fully and faithfully construct, perform and execute all work in the above titled matter in accordance with the Plans, Drawings, and Specifications relating thereto, and to furnish all labor, tools, implements, models, forms, transportations and materials necessary and proper for the purpose for the price/prices as given on the bid forms.
3. I/We do hereby declare that the prices so stated cover all expenses of every kind incidental to the completion of said work, and the contract therefore, including all claims that may arise through damages or any other cause whatsoever.
4. I/We do hereby agree that I/We will execute a contract therefore, containing all the terms, conditions, provisions and covenants necessary to complete the work according to the Plans and Specifications therefore within 10 business days after the award of the contract and if I/We fail to execute said contract within said period of time, that the Village Board shall have the power to rescind said award. The Contract execution will serve as the official notification to commence work.
5. I/We do also declare and agree I/We will commence the work within five days after the contract execution and will complete the work fully and in every respect on or before the time specified in said contract and do authorize the said Board, in case of failure to complete the work within such specified time to employ such men, equipment and materials as may be necessary for the proper completion of said work and to deduct the cost thereof from the amount due under the contract.
6. I/We agree that the Owner reserves the right to select any one, combination of, or all the Bid items in this proposal for the Contractor to complete without affecting any of the Bid prices.
7. I/We hereby affirm that 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 the 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 with 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; and
 - 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 submit a bid for the purpose of restricting competition.
8. I/We hereby further agree that this proposal is a firm bid and shall remain in effect for a period of at least seventy-five (75) calendar days from the date of the opening of bids, and that with said period of seventy-five (75) days, the Village will accept or reject this proposal, or this period may be extended by mutual agreement.
 9. I/We do hereby declare that, if this is a corporate bid, I have been duly authorized to act as the signator on this proposal in behalf of this corporation.
 10. I/We hereby affirm, under penalty of perjury, the truth of all statements in this proposal.
 11. I/We hereby agree that I/We accept the unit prices and/or lump sums on the following pages, for the various items of work.
 12. I/We hereby agree that I/We shall make no claim on account of any variation of the approximate estimate in the quantities of work to be done, whether the actual quantities are greater, smaller or completely deleted. A change in the quantity of any item shall not be regarded as sufficient ground for a change in the price of that item.

Date: _____

(Legal Name of Bidder)

By: _____

(Authorized Signature)

Corporate Seal
(if incorporated)

Bidder acknowledges receipt of Addenda as follows:

_____	_____
	Signature
_____	_____
	Signature
_____	_____
	Signature

The following is a list of places where we have performed work of similar character and magnitude, together with references:

Project Name & Location	Approximate Cost	Reference (Name, relation to project, phone #)

The full names and places of residence of all persons and parties interested as principals in the foregoing proposal are as follows:

_____	_____
(PRINT NAME)	(ADDRESS)
_____	_____
(PRINT NAME)	(ADDRESS)

Signature of Bidder: _____

U.S. Treasury No.: _____

Business Address: _____

Place of Residence: _____

Bid Form

The undersigned hereby submits the following bid to the Village of Hastings-on-Hudson for the roof replacement and select masonry restoration in the Village Hall located on Maple Avenue.

Schedule of Values:

- | | |
|--|----------|
| 1) General Conditions | \$ _____ |
| 2) Mobilization | \$ _____ |
| 3) Insurance | \$ _____ |
| 4) (Allowance 1) provide for 10% replacement of the existing wood tongue-and-groove decking at the portico roof (12 lf). New wood shall match existing dimensions, species, and profiles | \$ _____ |
| 5) (Allowance 2) provide for 10% replacement of existing cast stone coping stones (allowance = 12 units). New stones units to match existing in color, profile, and dimension | \$ _____ |

Division 2: Selective Demolition

- | | |
|--|----------|
| 6) (D1) Remove and dispose of existing roofing assembly at main roof, including the ballast, rigid insulation, fabric mesh, membranes and flashings down to existing substrate (Allowance = 5,280 sf). | \$ _____ |
| 7) (D2) Remove and dispose of existing roofing assembly at portico roof, including membrane, flashing, and plywood substrate (Allowance = 612 SF). Existing tongue-and-groove decking to be removed and salvaged for reinstallation. | \$ _____ |
| 8) (D3) Remove and dispose of two (2) existing roof drain bodies and covers (drains to remain in existing locations). | \$ _____ |
| 9) (D4) Remove and dispose of existing stucco coating system at inboard face of all parapet walls (Allowance = 1630 sf). | \$ _____ |
| 10) (D8) Remove and dispose of existing roof hatch and access ladder. | \$ _____ |

Division 3: Concrete

- 11) (C1) Scarify existing concrete roof slab. (allowance for 2" depth = 5,280 sf . Skim coat surface (100%). Build up skim coat as necessary to provide positive pitch to roof drains. \$ _____
- 12) (C2) Repair structural slab at locations indicated in plan. In prior probe locations, cut openings to achieve straight and orthogonal edges, anchor formwork to slab, dowel in reinforcing at all sides of cut opening, and pour new concrete to match existing in depth. \$ _____

Division 4: Masonry

- 13) (M1) Rebuild interior wythe of parapet masonry: disassemble damaged and deteriorated brick masonry units at interior wythe of parapet after stucco removal is complete. Rebuild interior wythe with new brick masonry units to match existing in color, profile, dimension, and bond pattern (allowance = 100%). \$ _____
- 14) (M4) Remove and reinstall existing cast stone coping units at existing parapets and install new saw-tooth copper flashing prior to reinstallation. \$ _____
- 15) (M8) After removal of inner wythe of brick at the existing parapets (M1), prepare, prime and paint steel dunnage. Install Kemper cold-fluid applied flashing and infill to close \$ _____

Division 7: Thermal Protection & Waterproofing

- 16) (T1) Provide and install new Kemper cold-fluid applied roofing membrane system and flashing at main and portico roofs (Allowance = 5,892 sf) \$ _____
- 17) (T2) Provide and install (2) new cast iron combination roof drains and overflows with covers, including domes, elbows, and connections as indicated on the drawings. \$ _____
- 18) (T3) Provide and install (2) new through-wall copper sleeves at existing scuppers. Flash scuppers fully with Kemper cold-fluid applied flashing \$ _____
- 19) (T4) Provide and install new two-piece copper counter-flashing at parapet walls with newly cut reglet at second masonry wythe to be secured at joint above historic through-wall copper flashing with lead wedges \$ _____

20) (T5) Provide new roof hatch with new curb and integral flashing.
Provide and install new OSHA compliant access ladder \$ _____

21) (MT4) Provide and install pipe curb assemblies and caps for future use.

Division 9: Finishes

22) (MT3) Prepare, prime and paint existing steel dunnage in its entirety. \$ _____

List of Unit Prices:

- A. Section 03355: Concrete Slab Patching, minimum depth 2" \$ _____ per sq. ft.
- B. Section 03355: Full Depth Repair to Structural Slab \$ _____ per sq. ft.
- C. Section 03355: Crack Repair to Structural Slab \$ _____ per lin. ft.
- D. Section 04520: Back-up Brick \$ _____ per sq. ft.
- E. Section 04510: Rake & Repoint Masonry \$ _____ per sq. ft.
- F. Section 07620: Sheet Metal Flashing & Trim \$ _____ per sq. ft.

Provide a list of electric powered tools anticipated to be used on the project:

Time to Complete:

If awarded the Contract we will substantially complete the work within _____ calendar days from the date the Agreement is executed.

Proposed Project Cost (Exclude Alternates from Total):

I/We acknowledge to perform all work shown on the drawings and described in the specifications for the sum of _____ dollars
(\$ _____ dollars)

THIS PROPOSAL SUBMITTED BY:
(Name, Address & Phone #)

SIGNED BY:

TITLE:

ATTACHMENT #1

STATEMENT OF NON-COLLUSION

STATEMENT OF NON-COLLUSION

(To be Completed by Each Bidder)

In accordance with Section 103-d General Municipal Law, effective September 1, 1966, every bid or proposal hereafter made to a political subdivision of the State or any public department, agency or official thereof or to a fire district or any agency or official thereof for work or services performed or to be performed or goods sold or to be sold, shall contain the following statement subscribed to by the bidder and affirmed by such bidder as true under the penalties or perjury; non-collusive bidding certification.

- a. 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:
 - (1) 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.
 - (2) 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.
 - (3) 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.

- b. 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 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 the person signing in its behalf.

- c. That attached hereto (if a corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signature of this bid or proposal in behalf of the corporate bidder.

Signed: _____

Firm: _____

Title: _____

Date: _____

ATTACHMENT #2

RESOLUTION

RESOLUTION

Resolved that _____ be
(Name of Corporation)

authorized to sign and submit the bid or proposal of this corporation for the following project

(Describe 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 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 adopted by

_____ corporation at a meeting of the

Board of Directors held on the _____ day of _____, 20__.

(SEAL OF THE CORPORATION)

(SECRETARY)

Laws of New York, 1965
Ch. 751, Sec. 103-d, as amended
effective September 1, 1965

ATTACHMENT #3
OFFER OF SURETY

OFFER OF SURETY
(To be Completed by Each Bidder)

In the event the above proposal is accepted and the undersigned is awarded the Contract for work, the undersigned offers as surety for faithful performance, bond and/or bonds to protect labor and material man, the following surety:

SURETY COMPANY

Signed _____ -

(Bidder)

CERTIFICATE OF SURETY to be signed by a duly authorized official, agent or attorney of the Surety Company.

In the event that the above Proposal is accepted and the contract for the work is awarded

to said _____ the

(Bidder's Name)

_____ will execute the Surety Bonds as
(Surety Company)

herein before provided.

Signed: _____

Dated: _____

ATTACHMENT #4

HOLD HARMLESS AGREEMENT

HOLD HARMLESS AGREEMENT

(To be Approved by Your Attorney)

The Contractor (and all subcontractors) shall, during the performance of this work, take all necessary precautions and place proper safeguards for the prevention of accident and shall indemnify and hold harmless, the Village of Hastings-on-Hudson, its employees, officers and agents from all claims, suits and actions and all damages and costs to which they may put by reason of death or injury to all persons or property of another resulting from unskillfulness, willfulness, negligence or carelessness in the performance of the work or in guarding and protecting the same or from any improper methods, materials implements or appliances used in its performance or construction or by or on account of any direct or indirect act or omission of passive or concurrent negligent act or omission by the Village of Hastings-on-Hudson or any of its employees, officers or agents may have directly or indirectly caused or contributed thereto.

BIDDER/CONTRACTOR (Company Name)

ADDRESS _____

(Signature)

(Print Name)

(Title)

(Dated)

NOTARY:

Subscribed and sworn to before me
this _____ day of _____, 20__

Notary Public

ATTACHMENT #5

BID BOND: AIA FORM A310-2010

 **AIA** Document A310™ – 2010**Bid Bond****CONTRACTOR:***(Name, legal status and address)***SURETY:***(Name, legal status and principal place of business)***OWNER:***(Name, legal status and address)***BOND AMOUNT: \$****PROJECT:***(Name, location or address, and Project number, if any)***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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so

Init.

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User Notes: (3B9ADA3E)

furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

_____	_____
<i>(Witness)</i>	<i>(Contractor as Principal)</i> <i>(Seal)</i>
_____	_____
	<i>(Title)</i>
_____	_____
	<i>(Surety)</i> <i>(Seal)</i>
_____	_____
<i>(Witness)</i>	<i>(Title)</i>

ATTACHMENT #6

CERTIFICATE OF COMPLIANCE WITH NYS SEXUAL HARASSMENT LAW

CERTIFICATE OF COMPLIANCE WITH NYS SEXUAL HARASSMENT LAW

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 the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section 201-g of the labor law.

(Legal Name of Bidder)

Date: _____

By:

(Authorized Signature)

ATTACHMENT #7

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

(To be Completed by Each Bidder)

Each bidder/proposer, any person signing on behalf of any bidder/proposer and any assignee or subcontractor and, in the case of a joint bid/proposer, each party thereto, certifies, under penalty of perjury, that to the best of its knowledge and belief, that each bidder/proposer and any subcontractor or assignee is not identified on the list created pursuant to paragraph (b) of subdivision 3 of section 165-a of the New York State Finance Law (the “Prohibited Entities List”).

During the term of any contract awarded pursuant to this bid, should the Village of Hastings-on-Hudson (the “Village”) receive information that a bidder/proposer is in violation of the above referenced certification, the Village will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the Village shall take such action as may be appropriate including, but not limited to, seeking compliance, recovering damages or declaring the bidder/proposer in default.

The Village reserves the right to reject any bid or proposal from a bidder/proposer that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any bidder/proposer that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that
(Name of Individual Signing this Certification)

he/she is the _____ of the _____ and that
(Title/Position of Signer) (Name of Bidder/Proposer)

neither the bidder/proposer nor any proposed subcontractor is identified on the Prohibited Entities List.

Print Company Name

By: _____
Signature

Title

Sworn to before me this

_____ day of _____, 20__

Notary Public

ATTACHMENT #8

AGREEMENT BETWEEN OWNER AND CONTRACTOR WITH GENERAL CONDITIONS FORM
AIA A101 + A201

AIA[®] Document A101[®] – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

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.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS**
- 2 THE WORK OF THIS CONTRACT**
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**
- 4 CONTRACT SUM**
- 5 PAYMENTS**
- 6 DISPUTE RESOLUTION**
- 7 TERMINATION OR SUSPENSION**
- 8 MISCELLANEOUS PROVISIONS**
- 9 ENUMERATION OF CONTRACT DOCUMENTS**

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

Init.

(Check one of the following boxes and complete the necessary information.)

[] Not later than () calendar days from the date of commencement of the Work.

[] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date
-----------------	-----------------------------

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
------	-------

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance
------	-------	---------------------------

§ 4.3 Allowances, if any, included in the Contract Sum: (Identify each allowance.)

Item	Price
------	-------

§ 4.4 Unit prices, if any: (Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.5 Liquidated damages, if any: (Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other: (Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than () days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner’s final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect’s final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

%

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

Init.

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

- Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor’s representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™-2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™-2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201-2017, may be given in accordance with AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203-2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™-2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™-2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™-2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date
--------	-------	------

.6 Specifications

Section	Title	Date	Pages
---------	-------	------	-------

.7 Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

Init.

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

The Sustainability Plan:

Title	Date	Pages
-------	------	-------

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)

Init.

AIA[®] Document A201[®] – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

THE OWNER:

(Name, legal status and address)

THE ARCHITECT:

(Name, legal status and address)

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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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

Init.

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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. 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.

§ 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 a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's 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 the Owner and by Separate Contractors.

§ 1.1.5 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.

§ 1.1.6 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.

§ 1.1.7 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.

§ 1.1.8 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

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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 Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 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 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 fourteen days of the Contractor's 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' 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.

§ 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 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish 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 rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 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.

§ 2.3.6 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.

§ 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 ten-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 prior approval of the Architect and the 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 Architect's 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 Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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§ 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 visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 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 2.3.4, 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 Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the 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 Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the 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 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.

§ 3.3 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 and 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. Unless the Architect 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 Work 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.

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§ 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 and in accordance with a Change Order or Construction Change Directive.

§ 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 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. 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 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 provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for 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.

§ 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.

§ 3.7.3 If the Contractor performs Work knowing it to be 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 and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect 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 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 and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that 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 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. 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.

§ 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.

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

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ 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.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect 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 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 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.

§ 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 Architect's approval. The Architect'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 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 perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall 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. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect 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 is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is 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 Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner 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 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 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 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 and the Architect 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.

§ 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 Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

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.

§ 3.14 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 or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, 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 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 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 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 or Architect. 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.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's 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, 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), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they 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.

§ 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

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

§ 4.2 Administration of the Contract

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

§ 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. The 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.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the

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Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor 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 Contractor 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 Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 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. Review of such submittals 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 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 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.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 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 Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

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

§ 4.2.12 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

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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 rendered in good faith.

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

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests 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 a Separate Contractor or the subcontractors of a Separate Contractor.

§ 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, shall notify the Owner 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 Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect 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 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 or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner 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 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 the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner 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 and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. 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 separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 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 and Separate 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 or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work,

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promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify 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 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 Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor 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 a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 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 or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor 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, 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 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, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner 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.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect 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 and signed by the Owner 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 Architect 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 Architect 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 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, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 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 Architect 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 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 Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's 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 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 Architect will 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

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affect the Contract Sum or Contract Time, the Contractor shall notify the Architect 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 Architect 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.

§ 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 or Architect, of an employee of either, or of a Separate Contractor; (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 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 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

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

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect 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 Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and

unless objected to by 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 ten days before the date established for each progress payment, the Contractor shall submit to the Architect 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 or Architect require, such as copies of requisitions, and releases and waivers of liens 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 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.

§ 9.3.2 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.

§ 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 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor 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 Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, 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 entitled to payment in the amount certified. The foregoing representations 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 Architect. However, the issuance of a Certificate for Payment will not be a representation that the 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.

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§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The 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 previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from 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;
- .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.

§ 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 withholds certification for payment under Section 9.5.1.3, 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 Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a 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 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 Architect 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 Architect and Owner 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 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 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after 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 Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner 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.

§ 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 that the Owner can occupy or utilize the Work for its intended use.

§ 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 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 list, the Architect 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 list, 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 to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare 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.

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§ 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 shall 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.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, 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 receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's 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 Architect's final 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 (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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the 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 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.

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.

§ 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; and
- .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.

§ 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 and 10.2.1.3 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 and 10.2.1.3. 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 or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either 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 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, 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 and Substances

§ 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 and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's 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 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 and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor 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, Architect, Architect's 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.

§ 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.

§ 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.

§ 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, 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.

§ 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 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 to the Owner 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 the Contractor 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 to the Contractor 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.

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§ 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 Architect and Architect's consultants; and (3) 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 Architect, Architect's consultants, 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 and Architect 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 Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the 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 Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's 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 Architect has not specifically requested to examine prior to its being covered, the 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

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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 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 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. 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 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 or Separate 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, 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.

§ 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, 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 Architect timely notice of when and where tests and inspections are to be made so that the 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 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 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 Architect of when and where tests and inspections are to be made so that the 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 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 Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the 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 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.

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 Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .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, 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 days' notice to the Owner 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.

§ 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 or entities 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 additional days' notice to the Owner and the 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 repeatedly 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 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.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, 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:

- .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.

§ 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 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,

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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 be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 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 Contract Time shall 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

- .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 the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 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 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.

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, 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.

§ 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 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 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.

§ 15.1.4.2 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. 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.

§ 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

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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 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 and the Architect, if the Architect is not serving as the Initial Decision Maker, of any 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.

§ 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 after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 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 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.

§ 15.3.2 The parties shall 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 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.

§ 15.3.3 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.

§ 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.

ATTACHMENT #9

MAINTENANCE BOND: AIA FORM A313-2020

AIA[®] Document A313™ – 2020

Warranty Bond

CONTRACTOR/PRINCIPAL:
(Name, legal status, and address)

SURETY:
(Name, legal status, and address)

OWNER/OBLIGEE:
(Name, legal status, and address)

CONSTRUCTION CONTRACT

Date:
Description:
(Name and location)

BOND

Term of the Bond
The Term of this Bond commences on the date of final completion under the Construction Contract and continues for a period of 2 years, unless otherwise specified below, notwithstanding a longer warranty period set forth in the Construction Contract.

Amount of this Bond: \$
Modifications to this Bond: None Sec Section 16

CONTRACTOR AS PRINCIPAL	SURETY
Company: (Corporate Seal)	Company: (Corporate Seal)
Signature:	Signature:

Name and _____	Name and _____
Title:	Title:
(Any additional signatures appear on the last page of this Warranty Bond.)	

(FOR INFORMATION ONLY — Name, address, and telephone)

AGENT or BROKER:	OWNER'S REPRESENTATIVE:
	(Architect, Engineer, or other party:)

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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 During the Term of the Bond, the Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the Contractor's warranty obligations set forth in the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor satisfies its warranty obligations under the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond. It is understood and agreed that in no event shall the Surety's obligations under this Bond extend to warranties provided by the Contractor's suppliers and manufacturers.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

- .1 the Owner first provides notice to the Contractor and the Surety during the Term of the Bond of the Owner's intent to declare a Contractor Default;
- .2 the Contractor fails to remedy the Contractor Default within a reasonable amount of time of such notice; and,
- .3 the Owner declares a Contractor Default and notifies the Surety.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly, under reservation of rights, and at the Surety's expense, remedy the Contractor's Default. The Surety may, with the consent of the Owner, arrange for the Contractor to remedy the Contractor's Default.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 The responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. The Surety is obligated, without modification or qualification, for the responsibilities of the Contractor for correction of defective work as set forth in the Construction Contract, and additional legal and design professional costs resulting from the Contractor's Default or resulting from the actions or failure to act of the Surety under Section 5.

§ 8 The Owner may request an extension of the Term of this Bond. The Surety, at its sole option, may extend the Term of this Bond by continuation certificate or rider setting forth the new expiration date.

- .1 If the Surety extends the Term of this Bond, the Bond shall be considered one continuous bond.
- .2 If the Surety decides not to extend the Term of this Bond, then the Surety shall notify the Owner in writing thirty (30) days prior to the end of the current term of this Bond at the address indicated on page 1.
- .3 Neither the Surety's failure to extend the Term of this Bond nor the Contractor's failure to provide a replacement bond or other acceptable security shall be considered a breach or default by the Surety or Contractor on this Bond, nor serve as a basis for a claim or demand on this Bond.

§ 9 The Surety's total liability under this Bond is limited to the Amount of this Bond indicated on Page 1, regardless of whether the Term of this Bond is extended, the length of time this Bond remains in force, and the number of premiums that shall be payable or paid.

§ 10 No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work of the Contractor required by the Construction Contract is located and shall be instituted within two years after a declaration of Contractor Default. If the provisions of this Paragraph are void or

prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be in writing and mailed or delivered to the address shown on the first page of this Bond.

§ 13 Provisions in this Bond that conflict with applicable statutory or other legal requirements shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein.

§ 14 Definitions

§ 14.1 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.2 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with the warranties required under the Construction Contract.

§ 14.3 Owner Default. Failure of the Owner, which has not been remedied or waived, to perform or otherwise comply with the other material terms of the Construction Contract.

§ 14.4 Contract Documents. All the documents that comprise the Construction Contract.

§ 14.5 Surety. The company or companies lawfully authorized to issue surety bonds in the jurisdiction where the project is located.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this Bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____
Signature: _____
(Corporate Seal)

SURETY

Company: _____
Signature: _____
(Corporate Seal)

Name and Title: _____
Address: _____

Name and Title: _____
Address: _____

ATTACHMENT #10

GENERAL RELEASE

GENERAL RELEASE

(To Be Submitted with Requisition For Final Payment)

KNOW ALL MEN BY THESE PRESENTS, that _____
(Contractor)

for and in consideration of the sum of _____
(Final Contract Price)

lawful money of the United States of America, to it in hand paid by

(Owner/Contracting Agency)

_____ have remised, released, quit-claimed, and forever discharged, and by these presents do for its successors and assigns remise, release, quit-claim, and forever discharge the said

(Owner/Contracting Agency)

and its successors and assigns and administrators, of and from any and all manner of action and actions, caused and causes of action, suits, debts, dues, sum and sums of money, accounts, reckonings, bonds, bills, specialties, covenants, contract, controversies, agreements, promises, variances, trespasses, damages, judgments, patents, extents, executions, claims and demands whatsoever in law and unity which against the said

(Owner/Contracting Agency)

now have or which heirs, executors, or administrators hereafter can, shall, or may have, for upon or by reason of any matter, cause or thing whatsoever, from the beginning of the world to the day of the date of these presents rising out of the construction, in accordance with contract entered into between parties hereto, dated _____, 2022, any admittance or supplements thereto.

IN WITNESS WHEREOF, the undersigned corporation has caused this agreement to be signed by its _____ and its corporate seal to be hereto affixed and duly attested by its

_____ this _____ day of _____.

ATTEST:

PRINCIPAL:

AFFIX CORPORATE SEAL

STATE OF NEW YORK)
) SS:
COUNTY OF WESTCHESTER)

On the _____ day of _____, 2022, before me personally came _____
_____ to me known, who, being by me
duly sworn, did depose and say that he resides in _____
that he is the _____ of _____
the corporation described and that he signed his name thereto.

Notary Public

ATTACHMENT #11

NON-DISCRIMINATION CLAUSE

NON-DISCRIMINATION CLAUSE

During the performance of the Contract, the Contractor agrees as follows:

- a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, color, or national origin. Such action shall be taken with reference, but not limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
- b. The Contractor will send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the Commission of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses "a." through "h." hereinafter called "non-discrimination clauses", and requesting such labor union or representative to agree in writing, whether in such collective bargaining or other agreement or understanding or otherwise, that such labor union or representative will not discriminate against any member or applicant for membership because of race, creed, color, or national origin, and will take affirmative action to insure that they are afforded equal membership opportunities without discrimination because of race, creed, color, or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of pay, or other forms of compensation, and selection for training or retraining including apprenticeship and on-the-job training. Such notice shall be given by the Contractor, and such written agreement shall be made by such labor union or representative, prior to the commencement of performances of this contract. If such labor union or representative fails or refuses so to agree in writing, the Contractor shall promptly notify the Commission for Human Rights of such failure or refusal.
- c. The Contractor will post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the Commission for Human Rights setting forth the substance of the provisions of clauses "a." and "b." and such provisions of the State's Laws against discrimination as the Commission for Human Rights shall determine.
- d. 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 race, creed, color, or national origin.
- e. The Contractor will comply with the provisions of Sections 291-299 of the Executive Law and the Civil Rights Law, will furnish all information and reports deemed necessary by the Commission for Human Rights under these non-discrimination clauses and such sections of the Executive Law, and will, permit access to his books, records, and accounts by the Commission of Human Rights, and Owner representatives/counsel for purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.
- f. The Contract may be forthwith cancelled, terminated, or suspended in whole or in part, by the contracting agency upon the basis of a finding made by the Commission of Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on the behalf of the Owner/Contracting Agency until he satisfied the Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the Commission for Human Rights after conciliation efforts by the Commission have failed to achieve

compliance with these non- discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor and an opportunity has been afforded him to be heard publicly before three members of the Commission. Such sanctions may be imposed and remedies otherwise provided by law.

- g. If this Contract is cancelled or terminated under clause "f.", in addition to other rights of the Owner provided in this contract upon its breach by the Contractor, the Contractor will hold the Owner harmless against any additional expenses or costs incurred by the Owner in completing the work or in purchasing the services, materials, equipment, or supplies contemplated by this contract, and the Owner may withhold payments from the Contractor in an amount sufficient for this purpose and recourse may be had against the surety on the performance bond if necessary.
- h. The Contractor will include the provisions of clauses "a.", through "g." 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 jurisdictional locale of the Project being contracted by the Owner. The Contractor will take such action in enforcing such provisions of such subcontract or purchase as the Owner/Contracting Agency may direct, including sanctions or remedies for noncompliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Contracting Agency/Owner, the Contractor shall promptly so notify the Owner's representatives/counsel, requesting him to intervene and protect the interests of the Owner (Contracting Agency's jurisdictional area).

Contractor's Signature

Date: _____

Printed Name and Title

SECTION 00700 – SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 CONTINUOUS OPERATION OF THE FACILITY

- A. The 7 Maple Ave building and grounds are in use and will be in continuous operation during performance of the Work. The Work shall be done with minimal interruption of or change in the regular schedule of operations.

1.2 DAMAGE-GENERAL

- A. Any damage caused by the Contractor to the 7 Maple Ave building and/or grounds must be repaired, replaced or restored immediately at the Contractor's expense. The Owner will work with the Contractor to find ways to avoid such damage.

1.3 OWNER'S RULES

- A. The Contractor shall abide by all rules and regulations issued by the Owner.

1.4 OWNER'S TERMS AND CONDITIONS

- A. All the 7 Maple Ave building's Terms and Conditions are agreed to as part of the Contract for Construction.

1.5 THE BUILDINGS AND SITE

- A. Contractor to be aware that the building is recognized to be historic in nature within the Village of Hastings-on-Hudson and is eligible to be listed on the State and National Register of Historic Places. All scheduled work shall be executed to fully protect and minimize damage to the building and the site, and to reuse existing materials wherever possible.
- B. Original features of the building must be protected at all times.
- C. Contractor shall keep the construction site presentable at all times. Unsightly materials shall be kept from public view at all times.

1.6 UTILITIES

- A. Electrical and water services are available at the site. All required services shall be inspected by the Contract bidder prior to bid submission. Additional services, as necessary, shall be arranged by the Contractor.

1.7 ENVIRONMENTAL CONSIDERATIONS

- A. The Village is committed to reducing greenhouse gas emissions from direct and indirect activities and to the acquisition of supplies and services that promote a clean energy economy. This contract requires use of products to the maximum extent possible that

meet or exceed the ENERGY STAR program or Federal Energy Management Program guidelines as applicable and the use of electric powered tools where feasible and effective.

- B. The Village is committed to reducing greenhouse gas emissions from direct and indirect activities and to the acquisition of supplies and services that promote a clean energy economy. To the extent fiscally practicable, the Village favors the use of low-carbon concrete (see attached material information from the New York State Department of Transportation).

1.8 DELIVERY OF MATERIAL AND ACCESS

- A. Contractors shall enter work areas only through the entrance designated by Owner.
- B. All major material and large vehicle deliveries should be scheduled with the Owner's site representative. One-day prior notification time is required.

1.9 WORKING HOURS

- A. See Instructions to Bidders Section.

1.10 CLEANING OF WORK AREAS

- A. Dirt and debris cannot accumulate on or near the Project site. The site must be left broom clean and free of litter at the end of each day's work. This includes both construction debris and trash generated by workers.
- B. Debris removal is solely the responsibility of the Contractor. Flammable materials must be removed on a daily basis.

1.11 PARKING AND OTHER FACILITIES

- A. No parking will be provided on site. Vehicles should be parked curbside at the perimeter of the site and obey all parking rules and regulations.
- B. Contractors are to use rest room facilities as designated by the Owner.
- C. There are limited facilities available for Contractor storage on site. All on site storage shall be coordinated with Owner prior to Construction start.

PART 2 - GENERAL CONSTRUCTION PRACTICES

2.1 LAWS AND REGULATIONS

- A. All applicable federal, state, and local laws, municipal and local ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract Documents throughout, and will be deemed to be included in the Contract Documents as though herein written out in full.

- B. Contractor shall be responsible for filing, procuring, displaying and signing-off of all permits required for the Work.
- B. All materials and methods of construction shall conform in necessary particulars to the requirements of the Occupational Safety and Health Act, and to any other similar regulations. In the event of any conflict with such regulations, the Contractor shall inform the Owner before proceeding.

2.2 DRAWINGS

- A. Before commencing Work, the Contractor shall take field measurements and verify all conditions, bearing all responsibility for proper dimensioning of Work. All Work must match existing conditions, and Owner reserves the right to request shop drawings for scope described in the Contract Documents, at no additional expense to the Owner
- B. Any conflict between new construction and existing conditions shall be brought to the attention of the Owner and Architect before proceeding with the Work.
- C. Under no circumstances shall deviation from the drawings be made without the Owner's consent. In the event that conditions are uncovered that significantly deviate from the Contract Documents, Owner shall be notified in order to evaluate the condition.

2.3 INSURANCE

- A. See Instructions to Bidders Section.

2.4 STAGING, SCAFFOLDING & HOISTING

- A. Contractor shall furnish, erect, maintain and remove at conclusion of the Work all staging, scaffolding, rigging, bridging and hoisting equipment required for the Work.
- B. Contractor shall obtain all necessary approvals and permits for the same.
- C. Contractor shall submit a scaffolding and protection plan for the Project prior to commencing the Work. Upon review of the plan with the Owner, a determination will be made regarding the need for lighting or security devices on scaffolding or fencing. No scaffolding may be placed without prior approval from the Building.

2.5 PROTECTION OF PROPERTY AND THE PUBLIC

- A. Contractor shall construct and maintain all Project fences and barricades required for the protection of the public in accordance with applicable governmental regulations and sound construction practice. The base of all scaffolding shall be protected from public access with plywood or fencing up to a minimum of 10'.
- B. Contractor shall maintain public access and egress to the property.

2.6 BUILDING UTILITIES DURING CONSTRUCTION

- A. Contractors shall not at any time enter existing electrical panels or shutoff any mechanical equipment, including piping system shut downs, without prior notification to the Owner.

- B. If work has to be performed which requires either shutdown or cut-ins into existing mechanical, electrical or plumbing systems, this work must be scheduled through the Owner 2 or more days in advance.

2.7 CONTRACTOR COMPORIMENT

- A. Unnecessary noise shall be avoided and necessary noise reduced to a minimum in consideration of the public and staff using the building during construction. Very noisy activities like demolition or drilling require prior notification to the Owner.
- B. No smoking inside the building, on the grounds, or adjacent to the property to is allowed.
- C. Use of alcoholic or controlled substances by the Contractor's employees at the construction site is strictly prohibited.

2.8 USE OF OPEN FLAME DEVICES

- A. Contractors using any open flame torch or heat- producing device must notify the Owner at least two days in advance in writing. Torch operations must comply with fire prevention directive 3-60R and MMA gas cylinder policy.

2.9 COMBUSTIBLE GAS

- A. Whenever Contractors are working with combustible gases for the purpose of welding, cutting, or fuel on School premises, these procedures must be followed:
- B. Prior to starting work, Contractor must provide a City -wide permit for the storage and use of combustible gas.
- C. Contractor must provide appropriate certificate of fitness (welding, etc.); one certificate per party doing the work.
- D. Contractor must provide one Fire Guard (with Certificate of Fitness) for each operator.
- E. Contractor must provide at least one water, CO2 or dry chemical extinguisher of ten pounds capacity for each fireguard.
- F. Cylinders may not be brought through the School during public hours. Cylinders should be hoisted to the location wherever possible. No spare cylinders will be permitted under any circumstances.
- G. Cylinders should be properly supported at all times; this includes while being transported on a hand truck.
- H. Contractors must give two days notice before work begins, as per Fire Department Directive 3-60R. This notice should be in writing.
- I. All other rules and regulations of the Fire Department still apply in addition to these procedures.

J. No propane cylinders shall be permitted in the building under any circumstances.

END OF SECTION 00700

SECTION 01010 - SCOPE OF WORK

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment, and services necessary to furnish, deliver and install the work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. The Work required for this project will be performed under one contract. The Contractor shall be responsible for performing the work items specified or shown in the Specifications and the accompanying Drawings issued as a part of this Contract and shall have all Subcontractors approved by the Architect and Owner.
- C. Drawings and Specifications: Contractor shall keep one complete set of the latest Contract Drawings and Specifications, with all the Addenda, available on the job site until the work is accepted, and shall keep these documents up to date. Refer to list of drawings located on the title sheet of the Drawings.

1.2 DESCRIPTION OF WORK

- A. Work of this section applies to other sections where noted and shall include, but is not limited to the following general notes:
 - 1. All labor, materials, equipment, and service for the work of this Section as shown on the drawings or specified herein or necessary for the completion of the work shall be provided by the Contractor.
 - 2. Historic components identified as “to be salvaged” shall be removed, salvaged, stored properly and cleaned for reinstallation. Owner shall direct location for storage of all salvaged historic fabric.
- B. Summary of Work

The purpose of this contract is a full roof replacement with localized masonry restoration as designed and indicated on drawings. The work includes but is not limited to:

- 1. G1 An asbestos inspection and testing were performed on the property by advanced environmental corp. And asbestos-containing materials were identified in the roof membrane and flashing as indicated in the report dated March 17, 2022, which is available to the contractor(s) to review. The contractor is responsible for coordinating the removal of all asbestos-containing materials and for securing all necessary permits and waivers to complete the work as scheduled. All work shall be performed in accordance with all the rules and regulations governing the removal of asbestos-containing materials as directed by the EPA, OSHA, and NYS laws. All asbestos abatement work is to be performed by a licensed, qualified abatement contractor.
- 2. G2 Given the age of the property on which work is to be performed, all paint finishes are assumed to contain detectable amounts of lead. All lead-based paint

- shall be removed in accordance with the rules and regulations governing the removal and containment of lead-based paint as directed by the EPA, OSHA, and NYS laws. All lead-based paint removal work is to be performed by a licensed, qualified contractor.
3. D1 Remove and dispose of existing roofing assembly at main roof, including the ballast, rigid insulation, fabric mesh, membranes and flashings down to existing substrate (Allowance = 5,280 sf).
 4. D2 Remove and dispose of existing roofing assembly at portico roof, including membrane, flashing, and plywood substrate (Allowance = 612 SF). Existing tongue-and-groove decking to be removed and salvaged for reinstallation.
 5. D3 Remove and dispose of two (2) existing roof drain bodies and covers (drains to remain in existing locations).
 6. D4 Remove and dispose of existing stucco coating system at inboard face of all parapet walls (Allowance = 1630 sf).
 7. D5 Not used.
 8. D6 Not used.
 9. D8 Remove and dispose of existing roof hatch and access ladder.
 10. D9 Not used.
 11. C1 Scarify existing concrete roof slab. (allowance for 2" depth = 5,280 sf . Skim coat surface (100%). Build up skim coat as necessary to provide positive pitch to roof drains. Refer to specification sections 03550 and 03355.
 12. C2 Repair structural slab at locations indicated in plan. In prior probe locations, cut openings to achieve straight and orthogonal edges, anchor formwork to slab, dowel in reinforcing at all sides of cut opening, and pour new concrete to match existing in depth. Refer to specification section 03300.
 13. M1 Rebuild interior wythe of parapet masonry: disassemble damaged and deteriorated brick masonry units at interior wythe of parapet after stucco removal is complete. Rebuild interior wythe with new brick masonry units to match existing in color, profile, dimension, and bond pattern (allowance = 100%). Refer to specification section 04520.
 14. M2 Not used.
 15. M3 Not used.
 16. M4 Remove and reinstall existing cast stone coping units at existing parapets and install new saw-tooth copper flashing prior to reinstallation. Refer to specification section 04435.
 17. M5 Not used.
 18. M6 Not used.
 19. M7 Not used.
 20. M8 After removal of inner wythe of brick at the existing parapets (M1), prepare, prime and paint steel dunnage. Install Kemper cold-fluid applied flashing and infill to close. Refer to specification sections 04520 and 07560.
 21. MT1 Not used.
 22. MT2 Not used.
 23. MT3 Prepare, prime and paint existing steel dunnage in its entirety. Refer to specification section 09900.
 24. MT4 Provide and install pipe curb assemblies and caps for future use. Refer to specification section 07620.
 25. W1 Not used.

26. T1 Provide and install new Kemper cold-fluid applied roofing membrane system and flashing at main and portico roofs (Allowance = 5,892 sf). Refer to specification section 07560.
27. T2 Provide and install (2) new cast iron combination roof drains and overflows with covers, including domes, elbows, and connections as indicated on the drawings. Refer to specification section 07560.
28. T3 Provide and install (2) new through-wall copper sleeves at existing scuppers. Flash scuppers fully with Kemper cold-fluid applied flashing. Refer to specification sections 07560 and 07620.
29. T4 Provide and install new two-piece copper counter-flashing at parapet walls with newly cut reglet at second masonry wythe to be secured at joint above historic through-wall copper flashing with lead wedges. Refer to specification section 07620.
30. T5 Provide new roof hatch with new curb and integral flashing. Provide and install new OSHA compliant access ladder. Refer to specification sections 07620, 07720 and 09900.
31. T6 Not used.
32. WD1 Not used.
33. WD2 Not used.
34. F1 Not used.
35. F2 Not used.

C. Related Sections Specified Elsewhere:

1. All Sections

1.3 QUALITY ASSURANCE

- A. Contractor shall comply with all security rules and regulations of Village of Hastings-on-Hudson and shall include all costs associated with compliance.
- B. Contractor shall comply with OSHA's revised standards for scaffolds and other safety measures. (Includes 1926.450 – Scope, application and definitions applicable to this subpart. 1926.451 – General requirements. 1926.452 – Additional applicants applicable to specific types of scaffolds. 1926.453 – Aerial lifts. 1926.454 – Training requirements.)

1.4 PROJECT CONDITIONS

- A. Job Conditions – Contractor shall be aware of and shall formulate with the Owner and the Architect the following:
 1. Areas which will be off limits to personnel, inside the existing building and the exterior areas adjacent to the building.
 2. The use of temporary services shall be described herein.
 3. The Contractor shall be responsible for protection to all landscape features surrounding the building. The Contractor shall photograph all features prior to Construction Kick-Off.
 4. A disruption of building services (heat, power, water, telephone, etc.) is to be avoided at all costs. In the event of such a disruption, the Owner shall be notified

a minimum of 72 hours before such change is to take effect. Shut downs shall be coordinated within the schedule to allow building occupants a 2 week notice whenever possible.

B. Existing Conditions

1. Building will be occupied at times during course of Construction Work. Refer to spec. section 01310 for project schedule.
2. Disruption of the operations of this fully occupied building is to be kept to a minimum. Where such disruption is necessary, the Owner shall be notified in advance for approval and coordination purposes. No disruptive actions shall be performed without prior approval of Owner.
3. During the construction process no storage or accumulation of debris or materials will take place on the existing roof, exterior basement areaway, front entry steps, surrounding site or anywhere within the building.
4. All transport and handling is to take place at the exterior of the building.
5. The Contractor will coordinate with the Owner and Architect as to any and what floors, stairs and other devices in the building will be accessible. Where such areas are in use, the Contractor shall provide all protection to prevent damage to interior finishes and disruption to building occupants.

C. Protection

1. Contractor shall provide, operate and maintain all barriers, fences, guard rails, enclosures, bracing, shoring, or tie backs necessary to protect personnel, visitors, structures, adjoining surfaces, surrounding buildings, vehicles, etc, from damage.
2. Take every precaution to protect all existing elements of building and its façades. Provide proper and adequate cushioning and padding materials whenever a device or piece of equipment comes in contact, or may come in contact with the existing building façades. These materials must be non-staining, non-bleeding, non-abrasive materials.
3. If the building façades become damaged during the course of work under this contract, it shall be repaired and/or replaced to the Owner's satisfaction, at no additional cost.

D. Traffic

1. Contractor shall ensure that interference with sidewalks, roads, driveways and adjacent facilities is kept to a minimum. No streets or sidewalk areas are to be closed or obstructed without permission from authorities having jurisdiction and the Owner.

1.5 CONTRACTOR USE OF PREMISES

- A. General: Limit use of the premises to construction activities in areas indicated; allow for full Owner occupancy.
- B. Occupancy: Tenants will occupy the site during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate tenant usage.

- C. The Work will be sequenced in such a way as to provide the least possible interference with the activities of the tenants and to permit continued use of areas not under construction.
- D. Be responsible for keeping the site in a neat orderly condition at all times free of rubbish and debris. Clean up and remove all accumulated rubbish and debris for all trades on a daily basis. The building, all entrances and surrounding area shall be kept free of surplus materials, dirt and rubbish at all times.

1.6 TEMPORARY SCAFFOLDS

- A. Contractor shall provide chutes, scaffolding, staging, rigging, sidewalk bridges, stairs, platforms, railings and similar items for proper execution of the work. Such apparatus, equipment, construction and use shall meet applicable requirements of labor laws, codes and regulations of authorities having jurisdiction.

1.7 INSURANCE REQUIREMENTS

- A. Comprehensive General Liability Policy:
 - 1. Refer to Instructions to Bidders for insurance requirements.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION

3.1 VERIFYING CONDITIONS

- A. Visit the site to determine by inspection all existing conditions, including access to the site, the nature of structures, objects and materials to be encountered, and all other facts concerning or affecting the Work. Information on the drawings shows existing conditions for information only and does not constitute a guarantee that other items may not be found or encountered.
- B. Before starting work, make a thorough examination of those portions of the structure in which the work is to be performed. Check the work adjoining or at underlying locations, in which the work is to be performed. Report to the Architect any and all conditions which may interfere with or otherwise affect or prevent the proper execution and completion of the work. Do not start the work until such conditions have been examined and a course of action mutually agreed upon.
- C. Failure to notify the Architects and Owner of unsatisfactory conditions will be construed as an acceptance of the conditions to properly perform the required work.
- D. The execution of work constitutes acceptance of the conditions. Later claims will not constitute relief from the requirements of the Specifications under this Section, nor will extra compensation be paid by the Owner.

3.2 SCHEDULING OF THE WORK

- A. Execute the work in connection with the building as indicated. In case of discrepancy between the plans and the actual conditions at the building, other than normal field conditions representative of construction practice at the time of the building's construction, report the conditions to the Architect and Owner.
- B. If there are any deviations from the agreed upon schedule, such deviations shall be reported to all parties, a minimum of 72 hours before deviation takes effect, to allow the other parties to adjust their schedules accordingly, or as mutually agreed upon by all parties.
- C. Schedule work so as to impose a minimum of hardship on the tenants and the Owner's operation of the facilities and the performance of the work of other trades. Identify any work which shall involve loud noise (such as drilling) and shall create excessive dirt or dust. This work shall only be performed at a time convenient to the Owner.
- D. The Owner or the Architect may require any schedule to be modified so that changes in the Work, delays or acceleration of any segment of the Work, shall be reflected in such schedule. The Contractor shall cooperate with the Owner in providing data for such changes in or modifications of schedules.

3.3 WORKMANSHIP

- A. Employ only competent mechanics thoroughly skilled in their respective jobs to perform the work. The work shall be performed by competent workers experienced in this kind of work and shall be carried through to completion with due regard to the safety of the public, tenants and the employees of the Contractor and with as little nuisance as possible.
- B. Special care shall be taken to assure that no unnecessary damage is done to the building. When erecting/installing materials, care must be taken that no damage be done to surrounding building surfaces.
- C. Provide temporary hoists as required for transportation of equipment and material. Install and operate in accordance with all safety regulations. Erect scaffolding as necessary to gain access to the various parts of the Work. Provide structurally sound, rigidly braced and properly constructed and operating scaffolding to support the activities of workmen and loads. Design and construction shall be in accordance with all applicable safety regulations.
- D. Perform the work in accordance with the highest standards and established practices in the trade, and conform to all the rules and regulations of all city, state and federal authorities having jurisdiction over this work.
- E. Protect and be responsible for the existing structures, facilities and improvements within the areas of operations under this Contract. Any disturbances or damage to the work, the existing improvements, or any impairments of facilities resulting directly or indirectly from the Contractor's operations shall be promptly restored, repaired or replaced to the satisfaction of the Owner at no additional cost.

- F. Furnish and maintain temporary types of protection as necessary to adequately protect and prevent accidental injury to the public, tenants, Owner's personnel and personnel employed at the work site. Take all necessary precautions to keep trespassers out of work areas. Properly secure work areas from entry when work is not in progress.

3.4 MANUFACTURER'S DIRECTIONS

- A. Where manufactured articles, materials of equipment are specified, but no specific installation instructions are provided, they shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's latest printed instructions.

3.5 FINAL CLEANUP

- A. At completion of the work the site and premises shall be left in a neat, unobstructed condition, and all work in perfect repair and order. All tools, appliances, materials and equipment belonging to the Contractor and trade contractors shall be removed from the premises upon completion of the work.

END OF SECTION 01010

SECTION 01026 - UNIT PRICES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased. "Units" will be defined within the individual Technical Specification Sections.

1.4 PROCEDURES

- A. Unit prices include all necessary material, labor, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 LIST OF UNIT PRICES

- A. Section 03355: Concrete Slab Patching, minimum depth 2" - per sq. ft.
- B. Section 03355: Full Depth Repair to Structural Slab - per sq. ft.
- C. Section 03355: Crack Repair to Structural Slab - per lin. ft.
- D. Section 04520: Back-up Brick - per sq. ft.
- E. Section 04510: Rake & Repoint Masonry - per sq. ft.
- F. Section 07620: Sheet Metal Flashing & Trim - per sq. ft.

END OF SECTION 01026

SECTION 01040 – COORDINATION

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. Contractor shall coordinate all work of Subcontractors. Coordination shall include, but not be limited to:
 - 1. Coordinate scheduling, submittals, and Work of the various sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements with provisions for accommodating items installed later.
 - 2. Coordinate work of Subcontractors in a manner which will allow each Sub-contractor adequate time at the proper stage of construction to perform work of the Contract.
 - 3. Furnish copies of approved Shop Drawings to each other Sub-contractor whose work is connected to this Contract. Resolve all problems of connected, adjacent or otherwise related work.
 - 4. In case of conflicts due to improper coordination, the Architect's resolution will be final. No compensation will be awarded for extra work required to resolve any conflicts.
 - 5. Coordinate access to site for corrections of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
 - 6. Provide field engineering services as required to execute contract Work. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- B. Utility Coordination: Contractor shall protect or leave undisturbed all site utility or building service lines encountered in the performance of the contract work unless otherwise directed by the Architect.
 - 1. Contractor shall verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION N/A

END OF SECTION 01040

SECTION 01045 – CUTTING AND PATCHING

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Contractor shall be responsible for all cutting, fitting or patching required to complete the work of the contract.

1.2 DESCRIPTION OF WORK

- A. Cutting and Patching covers adjustment to, and necessary reworking of, elements of construction in both new and existing work. The following definitions for cutting and patching apply to this Contract:
 - 1. Cutting: Physical modification of construction work, both new and existing, or physical removal of installed materials.
 - 2. Patching: Restoration or replacement and installation of construction material, both new and existing, including finishing, patching, and painting required to restore the surface to the condition of finish at the time of cutting.
 - 3. Note: Select areas may contain asbestos and or lead paint. Contractor to coordinate with abatement contractor hired by Owner prior to removals, demolition or cutting areas designated for work.
- B. Contractor shall perform or make arrangements for all cutting, fitting, or patching of work that may be required to make its several parts come together properly and fit it to receive or be received by Work of other contractors shown upon, or reasonably implied by, the Contract Documents.
- C. Contractor shall notify the Architect before cutting any structural concrete or steel work and receive authorization from the Architect as may be required prior to work.
- D. Related Documents:
 - 1. Drawings and general provisions of Contract, including General Conditions, Supplementary General Conditions, and other Division 1 Specification Sections, apply to work of this section.

1.3 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ration.
- B. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to

perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased safety.

- C. Visual Requirements: Do not cut and patch work exposed on the building's exterior or in its occupied spaces, in a manner that would, in the Architect's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch work in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by the Architect to be cut and patched in a visually unsatisfactory manner.

1.4 SUBMITTALS

- A. Procedural Proposal for Cutting and Patching: Where prior approval of cutting and patching is required, submit proposed procedures for this work well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:
1. Describe nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Describe anticipated results of the work in terms of changes to existing work, including structural, operational and visual changes as well as other significant elements.
 2. List utilities that will be disturbed or otherwise affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.
 3. Where cutting and patching of structural work involves the addition of reinforcement, submit details and engineering calculations to show that reinforcement is integrated with original structure to satisfy requirements.
 4. Approval by the Architect to proceed with cutting and patching work does not waive the Architect's right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.
- B. Absolutely no beams, joists, lintels, arches or other structural members within the building shall be cut or altered without written notice to the Architect requesting consent, including:
1. Identification of Project.
 2. Description of Affected Work.
 3. Necessity for cutting.
 4. Effect on other work and on structural integrity of Project.
 5. Description of proposed Work, identifying:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute Work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 6. Alternatives to cutting and patching.
 7. Written permission of Owner.
 8. Proposed date and time when cutting will commence.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. General: Except as otherwise indicated, or as directed by the Architect, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before producing the work.

3.2 PREPARATION

- A. Temporary Support: To prevent failure, provide temporary support of work to be cut.
- B. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take precautions not to cut existing pipe, conduit or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.

3.3 EXECUTION

- A. Contractor shall execute cutting or patching of work required to:
 - 1. Disassemble masonry.
 - 2. Uncover work to provide for installation of improperly sequenced work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to requirements of Contract Documents.
 - 5. Remove samples of installed work as specified for testing.
 - 6. Install specified work in existing construction.
 - 7. Remove existing work as required by the Contract Documents.
- B. Employ skillful workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete work without delay.

- C. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.
1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
 2. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.
- D. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
1. Where feasible, inspect and test patched areas to demonstrate integrity of work.
 2. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.
 3. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.
 4. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.
 5. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 RESTORATION

- A. Restore work which has been cut or removed; install products to provide completed work in accordance with requirements of Contract Documents.

3.5 CLEANING

- A. Thoroughly clean areas and spaces where work is performed or used as access to work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

SECTION 01060 – REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. All work shall conform to and be performed in strict accordance with all governing agencies such as, but not limited to:
 - 1. The New York State Building Code
 - 2. National Fire Protection Association – NFPA
 - 3. Federal Occupational Safety and Health Act – OSHA
 - 4. The Secretary of the Interior’s Standards for the Treatment of Historic Properties
- C. Contractor shall obtain and pay for all permits, fees, licenses, certificates, inspections, and other use charges, required in connection with the Work.
- D. This property is recognized to be historic in nature within the Village of Hastings-on-Hudson and is eligible to be listed on the State and National Register of Historic Places. The contractor shall recognize that all aspects and elements of the property may potentially contribute to this significance and the contractor shall not be judge of relative significance of any feature nor of the impact of any or all proposed alterations. This judgment is entirely the responsibility of the architect. Consequently, no work shall be performed on this property and no elements shall be altered, removed, reused, or taken from the premises without the written approval of the architect as being consistent with the requirements of the contract documents. All work shall be done in accordance with the Secretary of the Interior’s Standards for the treatment of Historic Properties.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION N/A

END OF SECTION 01060

SECTION 01200 – PROJECT MEETINGS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Project meetings will be held to accomplish the following:
 - 1. Coordinate the Work of the Project.
 - 2. Establish a sound working relationship among the Contractor, Owner and Architect.
 - 3. Review and update schedule; review job progress, payment request, status of material deliveries, shop drawings; discuss change orders and quality of construction.
 - 4. Expedite the work to completion within the project schedule.
- C. Kick-Off Meeting: The Architect will schedule the initial job meeting at the site.
- D. Weekly Job Meeting: A weekly meeting will be held between the Contractor, Owner and Architect to review progress and schedule. The Weekly Job (Project) Meetings will be scheduled by the Contractor.

Weekly job meetings shall be attended by prime Contractor, and by major subcontractors, as may be dictated by the phase of work in progress.
- E. Meeting notes: Meeting notes will be taken and distributed by the Contractor.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION N/A

END OF SECTION 01200

SECTION 01300 – SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
 - 1. Submittal Schedule.
 - 2. Schedule of Values.
 - 3. Products List.
 - 4. Shop Drawings.
 - 5. Product Data.
 - 6. Samples.
 - 7. Substitution Request Submittal.
 - 8. List of Subcontractors.
 - 9. Security List.
 - 10. Weekly Construction Reports.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. All Sections of Division 1.

1.3 SUBMITTAL PROCEDURES

- A. General: Contractor shall review, approve and submit subcontractor's shop drawings, product data and samples prior to submittal to Architect. Contractor shall stamp each copy with his review stamp and action.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - 3. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
1. Allow ten working days for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
 2. If an intermediate submittal is necessary, process the same as the initial submittal.
 3. Allow ten working days for reprocessing each submittal.
 4. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- D. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4-inches x 5-inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 3. Provide an electronic copy of each submittal.
 4. Record deviations from Contract Document requirements, if any, including minor variations and limitations. Include Contractor's stamp indicating information complies with Contract Document requirements.
 5. Submittals indicating less than complete review by Contractor will be returned for Contractor's compliance without Architect's review.
- E. Submittal Transmittal: Transmit each submittal from Contractor to Architect using a transmittal form of type approved by Architect. Submittals received from sources other than the Contractor will be returned without action.
- F. Distribute electronic or paper copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated.

1.4 SUBMITTAL SCHEDULE

- A. Concurrent with preparation of Contractor's Construction Schedule, prepare complete Schedule of Submittals. Submit complete Schedule of Submittals at preconstruction meeting, concurrent with Construction Schedule. Prepare schedule in chronological order according to specification section numbers.
 - 1. Coordinate submittal schedule with the list of subcontractors, schedule of values and the list of products as well as the Contractor's construction schedule.
 - 2. No payment will be made to Contractor until complete Schedule of Submittals has been received and accepted by Owner.
- B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
 - 1. When revisions are made, distribute to the same parties and post in the same locations.
 - 2. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 SCHEDULE OF VALUES

- A. A cost breakdown (schedule of values) using AIA document G703 shall be submitted to the Architect and the Owner prior to the first Application for Payment.
- B. Prepare schedule of values in chronological order according to specification section numbers.

1.6 PRODUCTS LIST

- A. Products List: Submit list of all products and manufacturers proposed for use on the project within ten days after receipt of Notice to Proceed. List shall be referenced to Specification Sections and Drawings. Clearly indicate deviations from specified requirements. Attach separate list of proposed product substitutions.

1.7 SHOP DRAWINGS

- A. Submit shop drawings where required by individual Specification Sections.
- B. Do not reproduce Contract Documents or copy standard information for use as shop drawings. Verify field measurements prior to preparation of Shop Drawings.
- C. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Standard information prepared without specific reference to the Project is not considered Shop Drawings. Verify field measurements prior to preparation of shop drawings.

- D. Shop Drawings include fabrication and installation drawings, schedules, patterns, templates and similar drawings. Include the following information:
1. Dimensions.
 2. Identification of products and materials included.
 3. Materials Safety Data Sheets (MSDS).
 4. Compliance with specified standards.
 5. Notation of coordination requirements.
 6. Notation of dimensions established by field measurement.
 7. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2-inches x 11-inches but no larger than 36-inches x 48-inches.
- E. Submittal Requirements: Submit one electronic version for Architect's review. The reproducible print will be retained, and one copy will be sent to Owner, and one to Contractor, which may be transmitted electronically.
1. Mark-up and maintain one print on site.
 2. Do not use Shop Drawings without appropriate final stamp indicating action taken in connection with construction.
- F. Each item shall be clearly identified as to proposed application. Where items of specified material and equipment are assembled to make up a larger apparatus, Contractor shall submit for approval, the manufacturer's or fabricator's assembly shop drawings. Such drawings shall include dimensions and all essential details of arrangement, construction, assembly and connections.
1. When directed by the Owner, the Contractor shall submit in approved form for the record, a Certificate of Compliance with a cited code or standard for the materials and equipment designated. Such certificates may be accepted in lieu of samples.
- G. Materials or equipment submitted for approval, which are not in accordance with the Contract Documents requirements, will be rejected. Shop drawings marked "Make Correction Noted," "Revise and Resubmit" or "Rejected" shall be revised and resubmitted until marked "No Exception Taken". Items installed without approved shop drawings may require removal or replacement at Contractor's expense.
- H. As part of the coordination work required for the Contractor, installation drawings shall be prepared by the Contractor as necessary. It is intended that these drawings be used to coordinate the work of the various trades and to clarify details of proposed assembly, erection and installation.
- I. Where indicated in these Specifications or on the Drawings, or when directed by the Owner Representative, installation drawings shall be submitted for approval or record. Any installation drawings will be submitted to the Architect and Owner for comment and approval when an installation condition or problem arises which the Contractor wishes the Architect and Owner to review.

- J. Coordination drawings are a special type of Shop Drawing; preparation of coordination drawings is specified in Section 01040 - Coordination.

1.8 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings. Include the following information:
 - 1. Manufacturer's printed recommendations.
 - 2. Compliance with recognized trade association standards.
 - 3. Compliance with recognized testing agency standards.
 - 4. Application of testing agency labels and seals.
 - 5. Notation of dimensions verified by field measurement.
 - 6. Notation of coordination requirements.
 - 7. Notation of Material Safety Data Sheets (MSDS).
- B. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- C. Submittals: Submit one electronic copy of each required submittal.
- D. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.
 - 1. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
 - 2. Do not permit use of unmarked copies of Product Data in connection with construction.
- E. Material Safety Data Sheets (MSDS):
 - 1. MSDS shall be delivered to the Owner at the beginning of the project and at least 2 days prior to the delivery. Copies shall be submitted to Architect at the same time.
 - 2. Applicable MSDS (Material Safety Data Sheets) for all hazardous and controlled substances shall be delivered to the Owner at the same time that the materials are delivered to the site.

1.9 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Architect's Sample. Include the following:
 - a. Generic description of the Sample.
 - b. Sample source.
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
- B. Submit Samples for review of kind, color, pattern, and texture, for a final check of characteristics with other elements, and for comparison of characteristics between final submittal and actual component as delivered and installed.
 1. Submit units identical with final condition of proposed material or products for the work. Include "range" samples (not less than three units) where unavoidable variations must be expected and describe or identify variations between units of each set.
 2. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, operation, and similar construction characteristics.
- C. Preliminary Submittals: Where samples are for selection of color, pattern, texture or similar characteristics from range of standard choices, submit full set of choices for material or product.
 1. Preliminary submittals will be reviewed and returned with Architect's mark indicating selection and other action.
- D. Submittals: Except for samples illustrating workmanship, fabrication techniques, operation and similar characteristics, submit three (3) sets; one will be returned marked with action taken.
 1. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
- E. Schedule: Significant samples submittals shall be included in the Contractor's Construction Schedule.
- F. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.
 1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.
 2. Process transmittal forms to provide a record of activity.

1.10 LIST OF SUB-CONTRACTORS

- A. The Contractor shall submit a list of all subcontractors who will be working in or around the building during the course of the project. The submittal shall include the name, address and telephone number of the subcontractors. The subcontractors should not enter the work site until the Contractor receives written approval from the Owner.
- B. When selecting subcontractors, their experience, reliability and professional work habits shall be the overriding criteria. The Owner reserves the right to approve or reject all subcontractors.

1.11 SECURITY LIST

- A. For the purposes of security, the Contractor shall submit, to the Owner and the Architect, a complete list of employees who will be entering the building. The list shall be submitted on company letterhead with employee's complete name and the last 4 digits of their social security number.

1.12 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, Architect will review each submittal, mark to indicate action taken, and return.
 - 1. Compliance with specified characteristics is Contractor's responsibility.
- B. Action Stamp: Architect will mark action stamp on each Submittal Cover Sheet as follows, to indicate action taken:
 - 1. "NO EXCEPTION TAKEN" - Indicates submittal conforms to "design intent" of the Work. Contractor may proceed with fabrication, procurement and installation.
 - 2. "MAKE CORRECTIONS NOTED" - Indicates submittal, after indicated corrections are made, would conform to the "design intent" of the Work. Contractor at their discretion may proceed with fabrication, procurement and installation, provided that the Contractor adheres to the corrections noted.
 - 3. "REVISE AND RESUBMIT" or "REJECTED" - Indicates submittal does not conform to "design intent" of the Work. Resubmittal is required. Contractor may not proceed with fabrication, procurement and installation, until resubmittals are accepted with "NO EXCEPTION TAKEN" or "MAKE CORRECTIONS NOTED" action as described above.
 - 4. Stamp Note: Reviewing is only for conformance with design concept of the project and compliance with the information given the Contract Documents. The Contractor is responsible for quantities and dimensions to be confirmed and correlated at the site for information as it pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction and for coordination of the Work of all trades. Any corrections on this drawing shall not be deemed an order for extra work.
 - 5. Do not permit submittals marked "Revise and Resubmit," or "Rejected," to be used at Project site, or elsewhere where Work is in progress.

6. Other Action: Where submittal is primarily for information or record purposes, special processing or other activity, submittal will be returned, marked "Action Not Required."

PART 2 - PRODUCTS N/A

PART 3 - EXECUTION N/A

END OF SECTION 01300

SECTION 01310 – PROJECT SCHEDULE

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Contractor shall prepare and submit a schedule for work which complies with the scheduling requirements as identified in the Bidding Requirements. The schedule should include:
 - 1. Shop Drawings: submittal dates and required approval dates.
 - 2. Product procurement and delivery dates.
 - 3. Dates for beginning, and completion of, each element or task of work.
 - 4. Long lead items.
- C. The schedule, when approved by the Architect and Owner, shall establish the dates for starting and completing work for the various portions of the Contract. It shall be the duty of Contractor to conform to the approved schedule to perform its work within the time limits indicated.

1.2 SPECIAL REQUIREMENTS

- A. Note that all work shall proceed upon approval by Owner and coordination with the schedule of the building. Refer to specifications section 00140 – Instructions to Bidders for construction working hours.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION N/A

END OF SECTION 01310

SECTION 01500 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. This Section includes requirements for construction facilities and temporary controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Temporary electric power, from existing sources.
 - 2. Temporary water supply, from existing source.
 - 3. Telephone service.
- C. Support facilities include, but are not limited to, the following:
 - 1. Field offices and storage sheds.
 - 2. Temporary toilet facilities (For contractor and for Owner).
 - 3. Dewatering facilities and drains.
 - 4. Temporary enclosures.
 - 5. Hoists.
 - 6. Temporary project identification signs and bulletin boards.
 - 7. Waste disposal services.
 - 8. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. First aid supplies
 - 2. Temporary fire protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Environmental protection.

1.3 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. Building code requirements.
 - 2. Health and safety regulations.

3. Utility company regulations.
 4. Police, fire department, and rescue squad rules.
 5. Environmental protection regulations.
 6. Historic Preservation Regulations.
- B. Standards: 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."
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.4 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within 15 days of the date established for commencement of the Work, submit a schedule indicating implementation and termination of each temporary utility.
- C. Submit a staging plan showing size and location of temporary construction facilities.

1.5 PROJECT CONDITIONS

- A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. If acceptable to the Architect, the Contractor may use undamaged, previously used materials in serviceable condition. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Section 06100 - Rough Carpentry.
1. For job-built temporary offices, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.

2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sizes and thicknesses indicated.
 3. For safety barriers and similar uses, provide minimum 5/8-inch-thick exterior plywood.
- C. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- D. Water: Provide potable water approved by local health authorities.

2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4-inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-Volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading. Location to be coordinated with owner.
- F. Temporary Toilet Units (contractor use): Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- H. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

- I. First Aid Supplies: Each Contractor shall provide and maintain medical supplies and equipment at the site for first aid service for personnel injured in connection with the Work.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
 1. Arrange with company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
 4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Architect. Neither the Owner nor Architect will accept cost or use charges as a basis of claims for Change Orders.
- B. Temporary Electric Power: Owner will make electric power available from existing sources; coordinate therewith for location of existing outlets, make own arrangements for power extension cords, and modify outlets only as necessary for construction purposes. Return all existing power sources to original condition at completion of Work.
- C. Temporary Water Service: The Owner will provide and maintain temporary water service to a central location adjacent to or in the building at grade level. Each Contractor shall provide necessary hose to extend temporary service to point of his use. The Owner will pay for water consumed in the work.
- D. Temporary Telephones: Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities.
 1. Post a list of important telephone numbers.

- E. Temporary Heat: Each Contractor shall provide and pay for heat devices and heat as required to maintain specified conditions for their construction operations.
1. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operations, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and consumed parts.
 2. Maintain minimum ambient temperatures of 50 degrees Fahrenheit in areas where construction is in process, unless indicated otherwise in specifications.
- F. Temporary Ventilation: Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapor, or gasses.
- G. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs; locations must be approved by Owner/Owner's Representative prior to installation.
1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
1. Provide separate facilities for male and female personnel.
 2. Existing toilet rooms may not be used by construction personnel.
- I. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
1. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- J. Drinking-Water Facilities: Provide containerized, tap-dispenser, bottled-water drinking-water units, including paper supply.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, storage sheds, and other temporary construction and support facilities for easy access.
1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

- C. Storage and Fabrication Sheds: Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Each Contractor is responsible for providing and maintaining suitable temporary facilities in approved locations for storage of their tools and materials. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.
 - 1. Appearance, type of construction, and locations shall be approved by the Owner/Owner's Representative. Relocate if necessary.
 - 2. Confine storage of materials to designated spaces.
- D. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations where feasible, utilize the same facilities. Maintain the construction free of water.
- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
- F. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees as per Section 01526 - Hoists, Ladders, Ramps and Scaffolding. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- G. Project Identification and Temporary Signs: Prepare project identification and other signs of size indicated. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative-treated wood or steel. Do not permit installation of unauthorized signs.
 - 1. No other signs or signage by Contractors will be allowed other than the necessary identification (company name) on office trailers or storage facilities and those required by authorities having jurisdiction.
- H. Project Identification Signs: Engage an experienced sign painter to apply graphics. Comply with details indicated.
 - 1. Temporary Signs: Prepare signs to provide directional information to construction personnel and visitors.
- I. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than two extinguishers.
 - 2. The amount of flammable material shall be kept at an absolute minimum and shall be properly handled and stored. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. The Owner/Owner's Representatives shall assume no responsibility for the use of equipment to extinguish fires.
 - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
 - 5. Open fires are prohibited at the site.
 - 6. Smoking is strictly prohibited on and adjacent to the project site.

- B. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
 - 2. Security System: Comply with all local and state codes regarding the installation. The installation shall reflect the overall quality and permanence of the remainder of the temporary enclosures and staging.

- C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

- D. At completion of each workday, contractor shall clean loose debris, dust, etc. in interior spaces directly below area of work.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, when 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 the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION 01500

SECTION 01522 – TEMPORARY PROTECTION/STABILIZATION

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

- B. This property has been determined to possess intrinsic historic significance and is eligible to be listed on the State and National Register of Historic Places. The contractor shall recognize that all aspects and elements of the property may potentially contribute to this significance and the contractor shall not be judge of relative significance of any feature nor of the impact of any or all proposed alterations. This judgment is entirely the responsibility of the architect. Consequently, no work shall be performed on this property and no elements shall be altered, removed, reused, or taken from the premises without the written approval of the architect as being consistent with the requirements of the contract documents. All work shall be done in accordance with the Secretary of the Interior's Standards for the treatment of Historic Properties.

1.2 DESCRIPTION OF WORK

- A. This work shall include, but not be limited to the following:
 - 1. Provide temporary weathertight enclosures for the protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.
 - 2. Provide temporary weathertight enclosures for the protection of interior spaces and finishes for the duration of disassembly and reassembly phases.
 - 3. Provide temporary enclosures at all openings left void upon removal of existing building elements and doors either for restoration or replication.
 - 4. Provide temporary weathertight enclosures for all exterior openings involving windows, doors, and masonry removals.
 - 5. Provide temporary bracing and/or shoring until erection is complete.
 - 6. Provide temporary weathertight enclosures and bracing to protect new roofing work at roof.

- B. Related work specified elsewhere:
 - Section 02070 - Selective Demolition (Disassembly, Salvage & Reassembly)
 - Section 04520 - Stabilization & Restoration of Existing Masonry

1.3 QUALITY ASSURANCE

- A. Job Mock-up: Provide one sample panel at each temporary protection situation for Architect's Review. Approved panel shall be used to establish quality of workmanship for duration of the project.
- B. Fire Performance Characteristics: Meet all requirements identified in Section 09900.

1.4 SUBMITTALS

- A. See Divisions 4, 7, and 9 for related submittals.

1.5 PROJECT CONDITIONS

- A. Protection of Historic Features: During erection of temporary enclosures, cover tops of walls, projections, interior finishes and all historic features with waterproof sheeting. Under no condition shall interior spaces be exposed to exterior for longer than is necessary to install waterproof sheeting.

PART 2 – PRODUCTS

- 2.1 See all sections for all approved products and materials.

PART 3 – EXECUTION

- 3.1 Contractor shall provide means and methods for Temporary Protection. A Temporary Protection Plan shall be submitted at the Project Kick-Off Meeting.

END OF SECTION 01522

SECTION 01710 – FINAL CLEANING

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Contractor shall:
 - 1. At completion of Work for each phase, remove waste materials, rubbish, tools, equipment, machinery and surplus materials.
 - 2. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from visible interior and exterior finished surfaces.
 - 3. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
 - 4. At completion of each work day, contractor shall clean loose, debris, dust, etc. in interior spaces directly below area of work.
 - 5. Prior to Completion, conduct an inspection of interior and exterior surfaces, and all work areas, to verify that the entire work is clean.
- C. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- D. 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 requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site in areas disturbed by construction activities.
 - b. Remove tools, construction equipment, machinery, and surplus material from project site.
 - c. Remove snow and ice to provide safe access to building.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, dust and similar foreign substances.
 - e. Remove debris and surface dust from limited access spaces, including roofs, terraces, and similar spaces.
 - f. Sweep interior floors of spaces directly below and adjacent to work area broom clean.
 - g. Remove labels that are not permanent.
 - h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

PART 2 – PRODUCTS N/A

PART 3 – EXECUTION N/A

END OF SECTION 01710

SECTION 01770 – CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Project record documents.
 3. Warranties.
 4. Instruction of Owner's personnel.
- B. Related Sections
1. Section 01300 – Submittals.
 2. Section 01710 – Final Cleaning.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Obtain and submit releases permitting Owner unrestricted use of the Work.
 5. Prepare and submit Project Record Documents, Final Completion construction photographs and photographic negatives, and similar final record information.
 6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 7. Submit changeover information related to Owner's occupancy, use, and maintenance.
 8. Complete final cleaning requirements.
 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment.
 - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Documents from deterioration and loss. Provide access to Documents for Architect's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Note related Change Orders, Record Drawings and Product Data, where applicable.

- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Drawings and Record Specifications, where applicable.

- E. Miscellaneous Record Submittals: 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.

1.7 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

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 N/A

END OF SECTION 01770

SECTION 02040 - SHORING AND BRACING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as specified herein, and/or as required by job conditions. The General Contractor is responsible for providing all shoring and bracing required for the completion of the project.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Extent of shoring and bracing work includes, but is not limited to, the following:
 - 1. Shoring and bracing necessary to protect existing building components, walkways, utilities, and other improvements during demolition and construction.
 - a. Provide temporary shoring and bracing for all elements that may remain in place while adjacent masonry is disassembled/removed. Temporary shoring and bracing must be sufficiently durable to last at least one full winter.
 - 2. Maintenance of shoring and bracing.
 - 3. Removal of shoring and bracing, as required.
- B. Related work specified elsewhere:
 - 1. Section 01522 - Temporary Protection/Stabilization.

1.3 QUALITY ASSURANCE

- A. Regulations: Comply with New York Building Code and ordinances of governing authorities having jurisdiction.
- B. Special inspection for structural stability shall be provided by a New York State licensed Professional Engineer approved by and paid for by the Owner.

1.4 SUBMITTALS

- A. Provide signed and sealed calculations and drawings by a Professional Engineer (licensed in the State of New York), hired by the contractor. These shall be submitted for the Owner's/Architect's/Engineer's review.
- B. The resulting temporary shoring and bracing drawings and calculations must show the proposed reactions from the temporary shoring and bracing, and the resulting stresses and

deflections in the existing floors, beams, girders, columns, and associated structural connections.

1.5 PROJECT CONDITIONS

- A. Before starting work, Contractor shall check and verify governing dimensions and elevations, take photographs to record any prior settlement or cracking of facades, adjoining structures, pavements, and other improvements and shall prepare a list of such damages, verified by dated photographs, and signed by the Contractor.
- B. The Contractor shall provide any necessary protection to ensure that all existing and newly built building elements remain undamaged due to construction activity. Any damage that occurs to such building elements shall be repaired by the Contractor at no additional cost to the Owner.
- C. It is the Contractor's responsibility (prior to and/ or during construction) to probe and evaluate the balance of all adjacent structural framing, bearing walls, etc. as to how to properly shore and brace the structure (as part of the contractor's means and methods of construction). This investigation must be conducted by a licensed Professional Engineer (in the state of New York) hired by the contractor. Such investigations will also be required for other existing construction that may be impacted by the proposed temporary shoring and bracing.

1.6 EXISTING UTILITIES

- A. Protect existing active sewer, water, gas, electricity and other utility services and structures.
- B. Comply with requirements of the New York State Building Code, and any governing agencies for protection, relocation, removal and discontinuing of services, as affected by this work.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide suitable shoring and bracing materials which will support loads imposed.

PART 3 - EXECUTION

3.1 SHORING

- A. Wherever shoring is necessary, locate the system to clear permanent construction and to permit forming and finishing of all masonry and other construction.

3.2 BRACING

- A. Locate bracing to clear load-bearing masonry piers and walls, floor framing construction, and other permanent work. If it is necessary to move a brace, install new bracing prior to removal of original brace.
- B. Maintain bracing until structural elements are rebraced by other bracing or until permanent construction is able to withstand loading.
- C. Repair or replace, as acceptable to Owner, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION 02040

SECTION 02070 - SELECTIVE DEMOLITION (Disassembly, Salvage & Reassembly)

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Work of this Section shall include, but is not necessarily limited to, the following:
1. Selective demolition and removals as noted on drawings and as required to accommodate new construction, including the following:
 - D1 Remove and dispose of existing roofing assembly at main roof, including the ballast, rigid insulation, fabric mesh, membranes and flashings down to existing substrate (Allowance = 4,400 sf + 830 = 5,280 sf).
 - D2 Remove and dispose of existing roofing assembly at portico roof, including membrane, flashing, and plywood substrate (Allowance = 510 sf + 102 = 612 SF). Existing tongue-and-groove decking to be removed and salvaged for reinstallation.
 - D3 Remove and dispose of two (2) existing roof drain bodies and covers (drains to remain in existing locations).
 - D4 Remove and dispose of existing stucco coating system at inboard face of all parapet walls (Allowance = 1360 sf + 270 = 1630 sf).
 - D5 Not used.
 - D6 Not used.
 - D7 Not used.
 - D8 Remove and dispose of existing roof hatch and access ladder.
 - D9 Not used.
 2. Legal disposal of debris.
 3. Protection of existing building and spaces to remain and shoring of the structure as required for structural integrity and personal safety.
 4. Patching and refinishing of existing surfaces damaged as a result of this work.
 5. Provide shoring and bracing of all building components and features to remain in place during the course of construction, special protection measures and a shoring plan shall be devised to protect and maintain the buildings' exterior walls, roofs and overall structural stability.
- B. Related work specified elsewhere:

1. All sections

1.3 QUALITY ASSURANCE

- A. Comply with the requirements of all applicable Federal, State and local safety and health regulations regarding the demolition of structures including ANSI/NFPD 241-Building Construction and Demolition Operations. Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Be responsible for any damage to any adjacent structures or site features to remain.
- C. Disassembly Firm Qualifications: Engage an experienced firm that has successfully completed selective disassembly Work similar to that indicated for this Project. Qualifications of subcontractor for work of this Section shall not be less than 10 years of field experience in work of this nature. This Contractor **MUST** be approved by the Architect/Engineer given the significance of the building and all of its building fabric.
- D. Professional Engineering: The Contractor shall retain the services of a Professional Engineer licensed in the State of New York to design and supervise installation of shoring.
- E. Pre-disassembly Conference: Conduct conference at Project site to comply with pre-installation conference requirements of Division 1 Section "Project Meetings."
- F. Coordination: All selective demolition work must be coordinated and scheduled with roofing and terrace work so as to protect the interior of the existing building from the elements throughout the course of work under this contract. The building must be weather tight at all times.

1.4 SUBMITTALS

- A. Schedule of Demolition Operations: Submit demolition procedures and operational sequence for Architect/Engineer's review prior to start of work. Submit a written request to Architect/Engineer well in advance of executing any cutting or alteration which affects:
 1. The structural value or integrity of any element of the project or of adjacent structures.
 2. The integrity or effectiveness of weather-exposed and moisture-resistant elements or systems.
 3. The efficiency, operational life, maintenance, or safety of operational elements or systems.
- B. Notice of Differing Conditions: Submit a written notification if, during the work of demolition and cutting, conditions are discovered which significantly vary from those shown on the drawings. Do not commence work until approval of Architect/Engineer.
- C. Shop Drawings: Submit the following prior to starting work:

1. Submit drawings of temporary structural shoring, bracing, framing or support, for the information of the Architect and Engineer. Such drawings will be reviewed by the Architect and Engineer for the effects of such temporary members on the structural elements to remain. These drawings shall include the reason for such temporary members, the location, the direction and magnitude of design reaction forces on existing structure, and details showing how these reaction forces will be applied to the existing structure.
 - a. Shop drawings shall be submitted with the Seal of the P.E. engaged by Contractor; P.E. must be licensed in the State of New York.
 - b. The Architect and Engineer will provide acknowledgment for concepts shown. Such acknowledgments shall be of the concept only and not of actual capacities or structural design and shall not in any way diminish or limit the Contractor's responsibility for the quality and performance of the work and for protecting existing structures and facilities.
- D. Proposed dust-control measures.
- E. Proposed noise-control measures.
- F. Schedule of selective disassembly activities indicating the following:
 1. Submit a detailed scaffolding and staging plan prior to implementation.
 2. Interruption of utility services
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Use of stairs.
 5. Detailed sequence of selective disassembly and removal work to ensure uninterrupted progress of Owner's on-site operations.
 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 7. Locations of temporary partitions and means of egress.
- G. Submit a system of cataloguing individual architectural elements that is congruent with the system utilized on the drawings. The cataloguing system should also comply with the Secretary of the Interior's Standards for cataloguing architectural elements. The system should include photo documentation, labeling, protection, and storage components.
- H. Inventory of items to be removed by Owner.
- I. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.
- J. Record drawings at Project closeout according to Division 1 Section "Contract Closeout."
 1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- K. Landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.5. DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Remove and Salvage, or Remove, Catalog and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, catalog, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect/Engineer, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.6 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.
- B. Historical items indicated remain the Owner's property. Carefully remove and salvage each item in a manner to prevent damage and deliver promptly to the Owner.
- C. Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the Owner, which may be encountered during selective demolition, remain the Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the Owner.

- 1. Cooperate with Owners, Architect/Engineer and Site Representative.

1.7 SPECIAL PRECAUTION

- A. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

1.8 PROJECT CONDITIONS

- A. Condition of Structure

1. The Contractor for the work of this Section shall be held to have visited the site, examined the premises, determined for himself the existing conditions, character of equipment and facilities needed for the performance of the work, and all matters which may in any way affect the work.
 - a. Information regarding existing construction or conditions is based on available record drawings which may or may not truly reflect existing conditions. Such information is included on the assumption that it may be of interest to the Contractor, but the Architect/Engineer, Owner and their consultants do not assume responsibility for its accuracy or completeness.
 - b. Notify the Architect/Engineer if, during the course of demolition, conditions are discovered which significantly vary from those shown on the drawings. Do not proceed until authorized by Architect/Engineer.
 2. The Contractor shall accept the condition of the site and structures as found. The Architect/Engineer and Owner assume no responsibility for condition of site or structures nor the continuation of the condition existing at time of bidding or thereafter.
- B. The building will be fully occupied during demolition and removal operations.
- C. Partial Removal
1. Items of savable value may be removed from the structure as the work progresses. Salvaged items must be stored accordingly in a safe, dry area, refer to Section 01012.
 2. Storage or sale of removed items on the site will not be permitted.
- D. Traffic
1. Conduct demolition operations and the removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.
 2. Do not close or obstruct streets, walks or other occupied or used facilities without permission from the owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- E. Utilities
1. Refer to Division 1 of the specifications for special requirements concerning utilities and services.
 2. Maintain any existing utilities required to remain; keep in service and protect against damage during demolition operations.
 3. Disconnect and seal abandoned utilities (if any) before starting demolition operations. Coordinate all work with owner and local utility companies having jurisdiction.

1.9 PROJECT SCHEDULE

- A. Before commencing any demolition work, submit for review by the Architect/Engineer, and approval of the Owner, a schedule showing the commencement, the order, and the completion dates for the various parts of this work.
- B. Before starting any work relating to existing utilities (electrical, drainage, etc.) that will temporarily discontinue or disrupt service to the structures to remain, notify the Architect/Engineer and the Owner 7 days in advance and obtain the Owner's approval in writing before proceeding with this phase of the work.

PART 2 – PRODUCTS

Refer to Part 3 - Execution, for Product Requirements

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect/Engineer.
- E. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 - 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.
 - 4. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.
 - 5. Cover and protect furniture, furnishings, and equipment that have not been removed.
- C. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise. See Temporary Enclosures Section 01522.
- D. Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of building to be selectively demolished. See Section 02040 Shoring and Bracing.

3.3 PROTECTION

- A. Take full precautions to protect workmen, passersby or any other persons from falling debris and other hazards of demolition operations.
- B. Execute demolition work to ensure protection of existing portions of building to remain against damages which might occur from falling debris or other cause.
- C. Materials Placement: Do not load structure with weight that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.
- D. Construction Operations: Do not employ any construction operation, equipment or vehicles that will endanger, overload or cause excessive deflection of the existing structure, or that will damage finished surfaces adjacent to and/or supported by the existing structure, except portions being removed.
- E. Take precautions to guard against movement, settlement, damage, or collapse of any part of building, site work or adjacent property; be liable for any such movement, settlement or collapse. If such damage does accidentally occur, repair promptly at no cost to Owner.
- F. Provide the necessary safeguards to prevent accidents, to avoid all un-necessary hazards and protect the public, the work and property at all times, including Saturdays, Sundays, and holidays.

- G. Be responsible for any and all damages which may arise or occur to any party whatsoever by reason of negligence in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life and limb.
- H. Make such explorations and probes as are necessary to ascertain any required protective measures before proceeding with demolition and removal. Give particular attention to shoring and bracing requirements so as to prevent any damage to existing construction.
 - 1. Provide interior and exterior shoring, bracing, or support to prevent movement or settlement or collapse of structures to be demolished and adjacent facilities to remain. The Contractor's Professional Engineer shall advise on bracing, shoring, underpinning, or other structural requirements. The Contractor shall bear all responsibility for prevention of movement or other structural fault. See specification section 02040 for additional information.
 - 2. Restore, by repair or otherwise, the portions of structure or their contents altered in furtherance of support operations. Restoration shall be completed to the conditions which existed prior to the start of the work. Any damage caused by inadequate support shall also be restored at no cost to the Owner.
- I. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs, and other items as required for proper protection of the workmen engaged in demolition and alteration operations, occupants of the building, public and adjacent property. Any damage shall be promptly repaired by the Contractor at no cost to the Owner.
- J. Provide and maintain temporary protection of the existing structure designated to remain where demolition, removal, and new work are being done, connections made, materials handled, or equipment moved.
- K. Take necessary precautions to prevent dust and dirt from rising. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means. Leave interior spaces below area of work, broom clean at the end of each day.
- L. Provide adequate fire protection in accordance with New York City Fire Department requirements.
- M. Do not close or obstruct walkways, passageways, or stairways and all other means of egress. Do not store or place materials in passageways, stairs, or other means of egress. Conduct operations with minimum traffic interference.
- N. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.
- O. Promptly repair damages caused to adjacent facilities by demolition operations at no cost to the Owner.
- P. Provide and maintain weather protection so as to fully protect the interior premises against damage from the elements until roofing work and new waterproofing membrane are completed.

3.4 INSPECTION

- A. Verify that construction to be removed is not load bearing or has been properly braced, framed or supported.
- B. Inspect existing conditions of the project, including elements subject to damage or to movement during demolition and cutting.
- C. After uncovering work, inspect the conditions affecting the installation or performance of the work.
 - 1. Report differing or questionable conditions to the Architect/Engineer in writing; do not proceed with the work until the Architect/Engineer has provided further instructions.

3.5 DEMOLITION PREPARATION

- A. Provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the work
- B. Provide devices and methods to protect other portions of the project from damage.
- C. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas and interior spaces below area of work to condition existing prior to the start of the work.

3.6 DEMOLITION AND CUTTING

- A. Selectively demolish existing construction in conformance with the drawings and these specifications.
 - 1. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surface to receive installation of work by others and patching of finish surfaces.
 - 2. Do all cutting or removal so as to leave neat, true, plumb and square edges, at edges to remain.
 - 3. Do not cut or remove construction which might weaken or impair the structural integrity or strength of the structural framing or support systems which are to remain.
 - 4. Demolish and remove materials as shown on the drawings without damage to the remaining parts of the structure or mechanical/electrical/utility systems.
 - 5. Remove materials so as to not impose excessive loads in supporting walls, floors or framing and so as not to damage remaining undemolished portions of the structure.
 - 6. Where portions of structures are to be removed, remaining portions shall be protected from damage and prepared to fit new construction. Damage to portions of structures to remain shall be repaired.
 - 7. Proceed with demolition in a systematic manner.

3.7 WORKMANSHIP STANDARDS FOR ALTERATION AND REMOVAL WORK

- A. Cut, remove, alter, temporarily remove and replace, or relocate existing work as required for performance of the work. Perform such work required with due care, including shoring and bracing.
- B. Coordinate patching involving the various trades whether or not specifically mentioned in the respective Specification Sections.
- C. Employ only competent mechanics thoroughly skilled in their respective crafts to perform the work. The work shall be performed by competent workers experienced in this kind of work and shall be carried through to completion with due regard to the safety of the public, Owner and the employees of the Contractor and with as little nuisance as possible.
- D. Special care shall be taken to assure that no unnecessary damage is done to the building. When removing any items, care must be taken that no damage be done to surrounding materials that are scheduled to remain.
- E. Perform the work in accordance with the highest standards and established practices in the trade, and conform to all the rules and regulations of all city, state and federal authorities having jurisdiction over this work.
- F. Work with noise producing equipment shall be subject, at all times, to acceptance of the procedure by the Owner.
- G. Protect and be responsible for the existing structures, facilities and improvements within the areas of operations under this Contract. Any disturbance or damage to the work, the existing improvements, or any impairments of facilities or adjacent facilities resulting directly or indirectly from the Contractor's operations shall be promptly restored, repaired or replaced to the satisfaction of the Owner at no additional cost.
- H. It shall be the Contractor's responsibility at all times to provide and maintain adequate shoring and bracing to properly maintain the existing construction when cutting new openings and other conditions as required. Shoring and bracing shall be designed to have the proper strength to sustain the loads and stresses encountered and sufficient to carry the superimposed loads with a safety factor of 4. See Specification Section 02040 for additional information.
- I. The other trades whose work is affected by or dependent upon the work of this section shall be kept informed of the schedule of operations.
- J. Furnish and maintain temporary types of protection as necessary to adequately protect and prevent accidental injury to the public, tenants, Owner's personnel and personnel employed at the work site and as required by Code and Ordinances. Take all necessary precautions to keep trespassers out of work areas. Properly secure work areas from entry when work is not in progress.
- K. Conduct demolition and removal operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities

without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by the Owner to maintain his needs.

- L. Keep streets and walks reasonably clean during working hours and thoroughly clean and sweep them at the end of the workday.
- M. Surplus material resulting from the work that may be left over is to be reviewed by the Owner. If the Owner decides to retain such material the contractor is to remove the material(s) to the Owner designated location within the project site. Surplus material not to be retained is to be removed by the Contractor from the site. Storage or sale of removed items on the Project site will not be permitted.
- N. Do not load, or permit any part of the existing building to be loaded, with any materials or equipment that may endanger its safety.
- O. The demolition and removal work shall be performed with care, so as to prevent unnecessary damage to usable materials and adjoining work.
- P. The Contractor shall have no right or title to any of the materials or other items to be removed from the existing improvements unless and until said materials and other items have been removed from the premises. The Contractor shall not sell or assign, or attempt to sell or assign any interest in the said materials or items until the said materials or other items have been removed, without the consent of the Owner.
- Q. Masonry openings are to be protected from rain at all times. Installation of protection in any openings when work stops for any reason is the responsibility of the Contractor. See Section 01522 Temporary Enclosures.
- R. Cut out embedded anchorage and attachment items as required to properly provide for patching and repair of the respective finishes.
- S. Where utilities are removed, relocated or abandoned, cap, valve, plug, or by-pass to make complete and working installation.
- T. Immediately restore to service and repair any damage caused by workmen to existing pipe and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment.
- U. Upon completion of contract, deliver work complete. Damage that may be caused by workmen to existing structures designated to remain, grounds, and utilities shall be repaired and left in as good condition as existed prior to damaging.

3.8 PATCHING AND REPAIRS

- A. Perform the cutting and removal operations using skilled workers in a clean, neat and orderly manner. Adjoining work and/or finishes are to be protected at all times during construction. If adjoining work or finishes are disturbed, defaced, or otherwise defective, they shall be neatly repaired or replaced in good order as approved by the Architect/Engineer. Patched surfaces shall be neatly filled and made to match adjoining

existing surfaces. Upon completion, existing areas that may have been worked on shall be left thoroughly clean and in neat and acceptable conditions.

- B. Perform cutting of the present work as made necessary by the alterations and the installation of new work as shown in the contract documents.
- C. The size, locations, etc., of items requiring an opening, chase or other provisions to receive it, by any trade, shall be given by the trade requiring same in ample time to avoid undue cutting of the new work to be installed. This provision shall not relieve the Contractor from keeping informed as to the required openings, chases, etc., nor from responsibility for the correctness thereof, nor for cutting and repairing after the new work is in place.
- D. Refer to related sections of the specifications for detailed description of materials and workmanship that shall govern. In this Section it is intended only to describe the general scope of work involved and cover items not specified elsewhere in the general specifications.
- E. Cutting
 - 1. Exterior Masonry: Saw cut. Jack hammering with electric or pneumatic equipment is not acceptable. Rotary drilling is not acceptable. The use of hand tools and hand cutting is the only method acceptable.
 - 2. Interior Masonry: Selective removal of interior masonry may be performed using small hand-held chipping tools or rotary drill. Work carefully to ensure that adjacent work scheduled to remain is not damaged.
- F. Patching/Dutchman and Repairing
 - 1. Matching existing work: Except where otherwise specifically indicated or specified as a definite change, the finish materials and appearance of the new patch/Dutchman work shall match the existing contiguous materials and finishes in all respects.
 - 2. Patching: Repairing and finishing of existing work: perform in compliance with the applicable requirements of specification, technical section covering the work to be performed and the requirements of this section.
 - 3. Include all patching in connection with new work that may be required to make its several parts come together and fit it to receive or be received by the work of other trades shown and/or specified, or reasonably implied by the drawings and specifications.
 - 4. Work disturbed due to all alterations shall be repaired to match surrounding construction and finishes including painting or whatever finish exists.
 - 5. Perform repairing, patching and piecing out, filling in, restoring and refinishing using mechanics skilled in their trade and complete in a workmanlike manner to leave work in condition satisfactory to the Architect/Engineer and as described throughout the various sections of the specifications.
 - 6. Masonry: Patch with sound whole units to match existing. Joints shall match adjoining surfaces.
 - 7. Materials and their methods of application for patching shall comply with applicable requirements of the specifications. Materials and workmanship not covered by the Specifications and items of work exposed to view adjoining

existing work to remain shall conform to similar materials and workmanship existing in or adjacent to the areas to be altered.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

A. General

1. Remove from the site debris, rubbish and other materials resulting from work of this Section through chute and dumpster, refer to Drawings for location.
2. Burning of removed materials from demolished portions of the structure will not be permitted on the site.

- B. Removal: Transport materials removed from demolished structures and legally dispose of off site. Pay any and all fees associated with disposal work. Leave the site in an orderly condition to the approval of the Architect/Engineer.

3.10 SALVAGED MATERIALS

- A. Salvaged Items: Where indicated on Drawings as "Salvage" or "to be salvaged" or "re-used", carefully remove indicated items, clean, store, and reinstall or turn over to Owner as indicated on the Drawings and in Specification Sections.

- B. Carefully remove, salvage and store properly the specified material for repair and restoration and incorporation into work. Store in area designated by Owner.

3.11 CLEANING UP

- A. Remove debris as the work progresses. Maintain existing premises in a neat and clean condition.

END OF SECTION 02070

SECTION 03355 - CONCRETE REPAIR WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. C1 Scarify existing concrete roof slab. (allowance for 2" depth = 5,280 sf . Skim coat surface (100%). Build up skim coat as necessary to provide positive pitch to roof drains.
- B. Repair structural slab at locations indicated in plan. In prior probe locations, cut openings to achieve straight and orthogonal edges, anchor formwork to slab, dowel in reinforcing at all sides of cut opening, and pour new concrete to match existing in depth.

1.02 RELATED SECTIONS

- A. Shoring and Bracing Section 02040
- B. Selective Demolition Section 02070

SUBMITTALS

- A. Product Data: Provide manufacturer's information on the structural polymer modified repair concrete, epoxy adhesive and anti-corrosion agent.
- B. Quality Control Submittals
 - 1. Certificates: Furnish manufacturer's certification that materials meet or exceed Specification requirements.
 - 2. Manufacturer's Instructions: Furnish manufacturer's literature, specifications, and application instructions.

1.5 QUALITY ASSURANCE

- A. Qualifications: Company specializing in the structural repair of architectural concrete shall have a minimum of three years experience and at least five similar installations of equal magnitude which have proven successful in all respects for a period of at least three years. Contractor shall be approved or trained by the repair materials manufacturer.
- B. Pay for the services of the manufacturer's representative to be present at start of concrete repair work.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply if the temperature is below 50°F or above 85°F unless the material manufacturer is consulted for recommendations.

1.7 WARRANTY

- A. Upon completion, on a single document, provide a copy of written guarantee, from the manufacturer and the applicator, against defects of materials and workmanship, for a period of two years, beginning with date of substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Polymer Modified Repair Concrete, Epoxy Adhesives and Anti-Corrosion Agent. Provide system to compatible materials by a single manufacturer.

- 1. STO Corp., Atlanta, Georgia.
- 2. Or approved equal.

2.2 MATERIALS

- A. All concrete mixes shall be meet the standards for low carbon embodied carbon content (with 20% slag).

- B. Polymer Modified Repair Concrete

- 1. Shall be non-shrink and of high compressive and bond strength, conforming to the following properties:
 - a. Compressive strength of 6,000 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of **2,000** psi in 28 days when tested in accordance with ASTM C882.
 - c. Linear length change in 28 days shall be 0.08% when tested in accordance with ASTM C157.
 - d. Flexural strength of 1,500 psi in 28 days when tested in accordance with ASTM C-78.
- 2. Repair concrete shall be "STO Overhead Mortar (80702)" as manufactured by STO Corp.

- C. Polymer Concrete Fast Set Patching Material

- 1. To be used at concrete deck if it is determined that standard cast-in-place concrete will not satisfactorily accommodate the Schedule. Use T-17 Patch Material, manufactured by Transpo Industries.

- D. Epoxy Injection Adhesive

- 1. Shall be capable of repairing cracks and meet the following criteria:
 - a. Tensile Properties (ASTM D 638) at 14 days.
 - i. Tensile Strength 3,000 psi min.

- ii. Elongation at Break: 1%
 - b. Flexural Strength (ASTM D790) at 14 days: 15,000 psi min.
 - c. Total Water Absorption (ASTM D570) at 1 days: .15
 - d. Bond Strength (ASTM C882) at 14 days: 3,300 psi
 2. Epoxy Injection Adhesive shall be "Sikadur" by Sika USA.
- E. Anti Corrosion agent for existing reinforcing bars.
 1. Shall be capable of protecting existing reinforcing steel against rust and corrosion and shall have the following properties:
 - a. Bond strength of 2,100 psi in 24 hours when tested in accordance with ASTM C882.
 - b. Rapid chloride permeability of less than 150 coulombs at 28 days when tested in accordance with ASTM CR02 and AASHTO T-277.
 2. Anti Corrosion agent shall be "STO Bonding and Anti-Corrosion Agent" (80246) by STO Corp.
- F. Repair Mortar for existing concrete.
 1. Shall be non-shrink and of high compressive strength, conforming to the following properties:
 - a. Compressive strength of 8,000 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of 240 psi in 28 days when tested in accordance with ASTM C882.
 - c. Linear length change in 28 days shall be less than 0.065% when tested in accordance with ASTM C157.
 - d. Flexural strength of 1,100 psi in 28 days when tested in accordance with ASTM C-78.
 2. Repair concrete shall be "STO Patch Extended Repair Mortar (82211)" as manufactured by STO Corp.
- G. Full Depth Repair Mortar for existing concrete.
 1. Shall be non-shrink and of high compressive strength, conforming to the following properties:
 - a. Compressive strength of 8,000 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of 260 psi in 28 days when tested in accordance with ASTM C882.
 - c. Linear length change in 28 days shall be less than 0.065% when tested in accordance with ASTM C157.
 - d. Flexural strength of 1,100 psi in 28 days when tested in accordance with ASTM C-78.
 2. Repair concrete shall be "STO Full-Depth Repair Mortar (80311)" as manufactured by STO Corp.
- H. Trowel Grade Mortar for existing concrete.

1. Shall be non-shrink and of high compressive and bond strength, conforming to the following properties:
 - a. Compressive strength of 6,500 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of 2300 psi in 28 days when tested in accordance with ASTM C882.
 - c. Linear length change in 28 days shall be less than 0.080% when tested in accordance with ASTM C157.
 - d. Flexural strength of 1,500 psi in 28 days when tested in accordance with ASTM C-78.
2. Repair concrete shall be "STO Trowel-Grade Repair Mortar (80701)" as manufactured by STO Corp.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Architect any conditions which prevents the performance of this Work.

3.2 SURFACE PREPARATION

- A. The existing surface shall be cleaned and roughened for providing sufficient bond. Roughen and clean surface to the degree specified by the manufacturer.
 1. Remove spalled and weak concrete and remove all loose and foreign material. Perimeter of repair shall have a minimum of 1/2" in depth. Edges are to be saw cut. Feather edges are not permitted.
 2. Exposed steel reinforcement shall be free of all rust, scale, oil, paint, grease, loose mill scale, and all other foreign matter which will prevent bonding with the repair concrete. Use power chipping or power driven brushes. Concrete behind bars shall be removed enough to allow for entire bar to be cleaned and coated. Remove concrete to the point past where sound materials begins.
 3. All surfaces to be repaired are to be grit blasted as part of final preparation. Contractor must follow all surface preparation requirements of the repair material manufacturer (prior to placement of the repair material).

3.3 CRACK REPAIR

- A. Crack repair shall be done by epoxy adhesive injection. If crack is dry at time of work, water shall be added to create a damp surface.
- B. Mix epoxy adhesive in accordance with manufacturer's instruction. Premix each component and combine in manufacturer's proportions by volume into a clean, dry mixing pail. Mix thoroughly for 3 minutes minimum with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its pot lost (20-30 minutes at 73°F).

C. Epoxy Injection

1. After epoxy injection of all dry cracks is complete, perform chemical grout injection on wet cracks.
2. Drill 5/8" diameter holes along the crack. Space holes approximately 1'-0" o.c. or as directed by manufacturer. Set injection ports into holes as directed by manufacturer, and wherever else required depending on crack size and other conditions. Seal surface of cracks between ports with a paste epoxy.
3. Pump epoxy at greater than 250 psi into first port. Pump for 45 seconds and then pause to allow the material to flow into all of the cracks and crevices. When epoxy starts to plow out 2nd port seal 1st port and then pump into 2nd port. When sealing vertical cracks, begin injecting at the bottom of the crack and work upwards.

3.4 REPAIR CONCRETE APPLICATION

- A. Coat existing reinforcing bars with anti-corrosion agent.
- B. Mix structural repair concrete in accordance with manufacturer's instruction. Follow time limits set by manufacturer to prevent hardening of material prior to placement.
- C. Prior to application of material, dampen area to be repaired so that pores of concrete are filled with water. Remove any standing water prior to patching.
- D. Work a scrub coat of the mixed material into the substrate with a stiff brush to insure intimate contact and establish bond.
- E. Complete repair while scrub coat is still wet with a trowel or other such device, all in accordance with the manufacturer's recommendations. Apply in layers not to exceed 2" in thickness. Layers are to be applied while previous layer is still plastic or only after it has cured 24 hours.
- F. Finish of the surface shall be slightly rough.

3.5 CURING

- A. Use water based curing compound that meets ASTM C305 or use continuous light water fogging for 48 hours. Curing compound must be compatible with all utilized STO products.
- B. Follow manufacturer's latest recommendations for all additional and/ or separate curing requirements.

3.7 PROTECTION AND CLEANING

- A. Clean all adjacent areas of excess material; powder, resin, and droppings.
- B. Protect material from freezing and from rainfall prior to final set.

3.8 FIELD QUALITY CONTROL

- A. The architect will inspect surfaces and reject any that contain cracks or other defects. The repair will be tested for soundness and structural integrity. Any defective areas shall be fixed at Contractor's expense.

END OF SECTION 03355

SECTION 04435 - CAST STONE REPLACEMENT

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. The Work of this Section includes all labor, materials, equipment and services necessary to complete the selective work as shown on the drawings and specified herein, including but is not necessarily limited to the following:
 - 1. M4 Remove and reinstall existing cast stone coping units at existing parapets and install new saw-tooth copper flashing prior to reinstallation

Related Sections:

- 1. Section 02070 - Selective Demolition
- 2. Section 04520 –Stabilization and Restoration of Existing Masonry
- 3. Section 07900 - Joint Sealers

1.3 REFERENCED STANDARDS

- A. American Concrete Institute (ACI)
- B. Concrete Reinforcing Steel Institute (CRSI)
- C. American Society for Testing and Materials (ASTM)
- D. Precast/Prestressed Concrete Institute (PCI)
- E. National Precast Concrete Association (NPCA)

1.4 QUALITY ASSURANCE

- A. Restoration Specialist
 - 1. Work must be performed by a firm having not less than five years successful experience in comparable masonry replication processes and projects.
 - 2. Employ only skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Qualifications of Manufacturer
 - 1. Demonstrate capability to make and provide the specified quality products by

- attestation of the NPCA under the Plant Certification Program.
2. Fabricator must have sufficient production capacity to produce transport and deliver required units without causing delay to the work.

1.5 SUBMITTALS

- A. Product Data: Submit fabricator's specifications, data and instructions for manufactured materials and products. Include mix designs, certifications and laboratory test reports as required. Include water absorption test reports for sample units. In addition, provide the following:
 1. Materials list of items proposed to be provided under this section.
 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 3. Manufacturer's certifications and laboratory test reports as required.
 4. Shop drawings showing complete information for fabrication and erection of the work of this section.
- B. Samples
 1. Submit three (3) precast samples, approximately 12" x 12" x 2", showing quality, texture, moldings, and color of the proposed finish.
 2. Submit three (3) samples each of anchorage and other attachments and accessories.
 3. Review of samples by the Architect will be for color, texture, and general condition only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

1.6 MOCK-UPS

- A. Prior to general reconstruction, prepare a sample area or areas selected by the Architect for approval by the Architect demonstrating:
 1. Method and workmanship of assembling new cast stone units.
 2. Method and workmanship of anchoring new cast stone units.
- B. Do not proceed with general reconstruction of panels until mock-up is approved by Architect.
- C. Approved mock-ups shall become the standard of work of this Section.
- D. Retain mock-ups during construction as standard for judging completed work.
- E. Incorporate approved mock-up into the finished work as directed by Architect.

1.7 PRODUCT HANDLING

- A. Delivery, Storage, and Handling
 1. Deliver the work of this section to the job site in such quantities and at such times as to assure the continuity of construction; carefully pack or crate to prevent

- damage.
2. Carefully load and pack units for transportation exercising all possible precaution against damage while in transit.
 3. Receive and unload units at the project site using only competent workmen and with the necessary care and handling to avoid damage and soiling.
 4. Units shall be stored clear of the ground on nonstaining planking in such a manner as to be protected from damage while in storage. Should cast stone be stored for an extended period, it shall be covered with polyethylene or other nonstaining waterproof material.
 5. Store units at the job site in a manner to prevent cracking, distortion, warping, staining, and other physical damage, and in a manner to keep marking visible.
 6. Lift and support the units only at designated lifting points or supporting points as shown on the approved shop drawings.
 7. Any units damaged before final acceptance shall be replaced.
 8. Patching of units will not be acceptable.

1.8 PROTECTION AND SCAFFOLDING

- A. The Contractor shall take extreme care in protecting the surrounding materials, buildings, vehicles, and pedestrians. It is the Contractor's responsibility to ensure that protective measures are in place and are adequate for the work being performed.
- B. Promptly as work proceeds and upon completion, remove excess mortar, smears, and droppings. Clean adjacent and adjoining surface of marks arising out of execution of the work of this Section.
- C. Scaffold work required to accomplish restoration work will be the responsibility of the Contractor and will be made available to all required trades without charge and will be adequately and safely maintained. All scaffolding, staging and appurtenances shall comply, in total, to the requirements of Safety and Health Regulations for Construction, and all other government agencies having jurisdiction. The most stringent requirements shall govern.
- D. Contractor shall provide temporary shoring, sheeting, and bracing and make safe all floors, roofs, walls and adjacent property as project conditions require. Contractor shall replace any items damaged in the course of the work at no extra cost to the Owner.

1.9 SCHEDULING

- A. The Contractor shall submit a schedule for proposed project execution. Work is to be performed on a daily basis, without interruption from the start of testing through project completion, unless weather conditions prohibit the performance of work or unless directed otherwise by Owner or Architect.
- B. Disruption of building use and service, including blocking entrances, sidewalks, etc., shall not be permitted without prior arrangement of the owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cement and Aggregates

1. General: All mix materials are to match the existing in aggregate and bonding agents in appropriate color, grain size and texture, throughout the unit to assure uniform weathering. Graded cementitious stone mix must match the original in all characteristics, surface appearance and color. Mix developed must be color stable, even after exposure to the environment over a long period of time.
2. Cement: Portland cement, ASTM C150, Type I, to obtain uniform color and to complete the work. Color: White.
3. Coarse Aggregate: ASTM C33, clean, washed, graded, hard, durable natural gravels or crushed stone such as granite, marble, quartz; free of deleterious materials. Approved for use and color; except that gradation may vary to achieve desired finish and texture.
4. Fine Aggregate: ASTM C33, clean, washed, hard, durable, natural sand, or manufactured granite, marble, quartz, or limestone sands; free of deleterious materials. Approved for use and color; except that gradation may vary to achieve desired finish and texture.

- #### B. Coloring:
- Colors shall be inorganic, alkaline stable (natural or synthetic) iron oxide pigments meeting C979, excluding the use of a cement grade of carbon black pigment, and shall be guaranteed by the manufacturer to be light-fast and lime-proof. The amount of pigment shall not exceed 10% by weight of the cement used. Architect shall approve sample color of stone prior to fabrication for color matching.

- #### C. Water:
- Clean and potable.

D. Precast Concrete Unit Mix

1. Provide a mixture of white Portland cement aggregate and water that produces a stone with a minimum ultimate compressive strength of 7,000 psi when tested and described in the American Concrete Institute Specification ACI 704.44.
2. The stone shall be of uniform composition throughout and reinforced with steel as necessary to resist stresses due to handling or as otherwise specified.
3. Units shall have a smooth finish, unless indicated otherwise, on exposed surfaces, obtained by grinding with carborundum brick and clean water.
4. Surfaces in contact with mortar shall be cut as necessary for proper bond. Color shall be as stipulated by the Architect; color shall be uniform for each unit and consistent for all units.

E. Design

1. Make necessary provisions in the design to accommodate stresses to be encountered in transporting and erecting the precast units.

F. Standards

1. Design in accordance with pertinent recommendations contained in:
 - a. ACI 301.

- b. ACI 304.
- c. ACI 311.
- d. ACI 318.
- e. ACI 347.
- f. CRSI "Manual of Standard Practice."
2. Comply with requirements of governmental agencies having jurisdiction.
3. In the event of conflict between or among standards, the more stringent provision shall govern unless directed otherwise by the Authority.

2.2 REINFORCEMENT AND CONNECTION MATERIALS

- A. Provide reinforcement, accessories, and connection materials as detailed on the drawings and as required to withstand stresses exerted during handling, transportation, temperature change and expected usage.
- B. Manufacturers: Hohmann & Barnard, Inc.; Hauppauge, New York 11788.
- C. Reinforcement and Anchoring
 1. Cast stone shall be reinforced with new stainless steel reinforcing bars meeting ASTM A955 / A955M Grade 40 or Grade 60, when necessary for safe handling, setting and structural stress; and the size of the reinforcement shall be galvanized when covered with less than 2" of material for bars larger than 5/8" and 1-1/2" for bars 5/8" or smaller. The material covering in all cases shall be at least twice the diameter of the bars.
 2. Anchors, dowels, and other anchoring devices shall be furnished by the stone setter as shown on approved shop drawings using standard building stone anchors commercially available in stainless steel, type 302 or 304.

2.3 FABRICATION

- A. General
 1. Fabricate the work of this section to the sizes and shape indicated, and of texture matching the approved samples.
 2. Provide finished units that are straight, true to size and shape, and within the specified casting tolerances.
 3. Make exposed edges sharp, straight, and square, unless indicated otherwise. Make flat surfaces into a true plane.
 4. Warped, cracked, broken, spalled, stained, and otherwise defective units will not be acceptable.
 5. Place and secure in the forms all anchors, clips, stud bolts, inserts, lifting devices, shear ties, and other devices required for handling and installing the precast units and for attachment of subsequent items as indicated or specified.
- B. Curing
 1. Form cure the work of this section for a minimum of 24 hours.
 2. Keep wet continuously for not less than ten days after being removed from the forms.
 3. Following the curing period, allow the units to air dry. Units shall not be erected before 28 days after casting.

- C. Casting Tolerances: Maintain casting, bowing, warping, and dimension tolerance below the following maximums:
 - 1. Overall dimension for height and width of units: plus zero, and minus 1/16" of unit length.
 - 2. Make thickness of units plus or minus 1/8" maximum.
 - 3. Bowing or Warping: Do not exceed 1/360 of the length.
 - 4. Insert Locations: Place within plus or minus 1/4" in each direction.
- D. Units shall be reinforced as may be required for handling and to allow for temperature changes and structural stress. There shall be a minimum steel reinforcement amounting to 1/4 percent of the sectional area of the unit and, should the unit be greater than 12" in any sectional dimension, the temperature steel shall be placed in both directions.

2.4 MORTAR

- A. Mortar for Setting Bed and Pointing: One (1) part nonstaining white Portland cement, ASTM C150; one (1) part lime, ASTM C207, type N; six (6) parts sharp, clean, washed sand, ASTM C144; coloring pigments as required; and clean, potable water from City mains. Mortar to match original in color, texture, profile and details.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this section will be performed. Do not proceed until conditions are satisfactory for performing the work properly.

3.2 COORDINATION

- A. Coordinate as required with other trades to assure proper and adequate accommodation with the work of this section.

3.3 INSTALLATION

- A. General
 - 1. Deliver anchorage items which are to be embedded in other construction before start of such work. Provide setting diagrams, templates, instructions and directions as required for installation.
 - 2. Do not install precast units until substrates have attained their design strengths.
 - 3. Install cast members plumb, level and in alignment within PCI MNL-117 and specified limits of erection tolerances. Provide temporary supports and bracing as required to maintain position, stability and alignment as members are being permanently connected. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
 - 4. Accessories: Install clips, hangers, and other accessories required for installation of precast units to supporting members.
- B. Install the work of this section in strict accordance with the original design, the approved shop drawings, and the manufacturer's recommended installation procedures as approved

by the Architect, anchoring all components firmly into position.

- C. Discrepancies
 - 1. Immediately notify the Architect in writing of any inconsistencies in the field and submit recommendations for correction.
 - 2. Do not proceed until discrepancies or errors fully corrected.
- D. When setting with mortar, stones not thoroughly wet shall be drenched with clear water just prior to setting.
- E. Cast stone shall be set by experienced stone masons, accurately and in accordance with the shop and setting drawings. Unless otherwise noted, every stone shall be set in a full bed of mortar with all vertical joints flushed full. Anchors and dowels shall be firmly placed and anchor holes and dowel holes and similar holes filled completely with mortar.
- F. After each stone has been set, joints shall be raked to a depth of 3/4" from the face for pointing. The face of each stone shall then be sponged off to remove any splashed mortar or mortar smears.
- G. Stone shall be protected from splashing mortar or damage by other trades. Any foreign matter splashed on the stone shall be removed immediately.

3.4 CLEANING AND POINTING

- A. Before pointing, the face of all cast stone shall be scrubbed with a fiber brush, using soap powder and water and shall then be rinsed thoroughly with clean running water. Any mortar on the face of the cast stone shall be removed. No acids or prepared cleaners shall be used without the approval of the cast stone manufacturer.
- B. When ready for pointing, the joints shall be dampened and carefully pointed to a slight concave, unless otherwise specified by the Architect. No pointing shall be done in freezing weather, nor in locations exposed to hot sun, unless properly protected. Pointing mortar shall be composed of one (1) part nonstaining white Portland cement, ASTM C150; one (1) part lime, ASTM C207, type N; six (6) parts sharp, clean, washed sand, ASTM C144; coloring pigments as required. The Architect shall approve color or pointing mortar before proceeding with pointing.

END OF SECTION 04435

SECTION 04510 - MASONRY REPOINTING AND CAULKING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the contract documents. Provide materials, labor, equipment, and services necessary to furnish, deliver, and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Work in this Section includes, but is not necessarily limited to, the following items:
 - 1. Repointing as required as a result of adjacent work such as stone repair, flashing repair, and new construction elements.
 - 2. Caulking and sealants including sealants, primers, fillers etc.
- B. Related work specified elsewhere:
 - 1. Section 02070 – Selective Demolition
 - 2. Section 04520 – Stabilization & Restoration of Existing Masonry

1.3 QUALITY ASSURANCES

- A. Work shall be performed by qualified trained mechanics, skilled in the specialty of pointing masonry, having experience in other installed work comparable in scope, magnitude, similarity of design, and quality equal to this Project.
- B. Sample Panel
 - 1. Prior to proceeding with the work, the contractor shall demonstrate to Architect procedure of cutting the masonry joints.
 - 2. Contractor shall hand cut or diamond saw cut, and repoint a designated area of the masonry in location as directed, using the tools, procedures, materials, and techniques they intend to use for the entire building. Sample area shall indicate methods of cutting out joints, repointing, tooling, mortar color and texture. See Part 3.2 for cutting joints.
 - 3. Sample area shall be inspected by the Architect and Owner/Owner's Representative and, if necessary, shall be extended or repeated until the results are satisfactory. After approval, sample panel shall serve as a standard of the quality required for the work.
 - 4. If saw cutting of joints cannot be performed satisfactorily due to substrate or

existing conditions, the Contractor is to hand cut all joints for repointing. A sample of a 3x3 area shall be cut as outlined in B.2.

1.4. SUBMITTALS

- A. The Certificates listed below are required to be submitted by the Contractor to the Architect, for review. An omission of an item or items does not relieve the Contractor from his responsibility, and for compliance with the Contract Documents, of which this is a part.

NOTARIZED CERTIFICATES OF COMPLIANCE

Item No.	Description	Standard
C1	Portland cement	ASTM C-150 Type I
C2	Non Staining Cement	Fed Spec SS-C-181
C3	Hydrated Lime	ASTM C-207, Type S
C4	Hydrated Hydraulic Lime	ASTM C-141, NHL 3.5
C5	Testing of mortar	ASTM C-270
C6	Aggregate	ASTM C-144
C7	Caulking	As specified, each kind
C8	Back-up Materials	As specified

- B. Submit the following samples for approval.

SAMPLES

Item No.	Quan.	Size	Description
S1	1	12" long	Cured pointing mortar, color & texture to match original brick
S2	1	12" long	Cured pointing mortar, color & texture to match original terra cotta
S3	1	12" long	Cured pointing mortar, color & texture to match original brownstone
S4	1	chart	Color selection, each type of caulk
S5	3	6" long	Back-up material
S6	3	2" dia.	Preformed caulk

- C. Submit manufacturer's printed data sheets and color charts for all materials.
- D. Samples of proposed pointing material shall be installed where directed by the Architect, and repeated if required, to obtain approval.
- E. Sample panel shall be representative of pointing material, color and finish, as indicated on drawings and specified herein. Sample panel shall remain in place until final

acceptance of the work by the Owner.

1.5 REFERENCE STANDARDS

- A. The work of this Section shall comply as a minimum requirement to the recommended practices contained in the following standards:
 - 1. "Repointing Mortar Joints in Historic Brick Buildings", Preservation Brief No. 2, by Robert C. Mack, AIA, Technical Preservation Services Division, Office of Archeology and Historic Preservation, U.S. Dept. of the Interior, April, 1976.
 - 2. American Society for Testing & Materials (ASTM.)
 - 3. Federal Specifications (Fed. Spec.)

1.6 DELIVERY, STORAGE & HANDLING

- A. Deliver materials to the job site, ready for use in the manufacturer's original and unopened containers and packing, bearing labels as to type of materials, brand name, and manufacturer's name. Delivered materials shall be identical to certificates.
- B. Store materials under cover in a dry and clean location, off the ground, and remove materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials. In addition, review and follow all manufacturers' recommendations for storage and handling.
- C. Deliver materials and handle to prevent the inclusion of foreign materials and the damage of materials by water or breakage.
- D. Perishable materials shall be properly protected and stored in weathertight structures, with floor raised not less than 12" above the adjoining grade. However, for short intervals of time, cement may be stored on suitable raised platforms and covered with waterproof tarpaulins.
- E. Remove cement that has hardened or partially set from the site and do not use.
- F. Store aggregates in clean bins, scows or platforms having hard, clean surfaces. In arranging for storage of aggregates, positive means shall be used to prevent the inclusion of foreign materials. Frozen aggregates or aggregates containing frozen lumps shall be thawed before use. Washed aggregates and aggregates produced or manipulated by hydraulic methods shall be allowed to drain for at least 12 hours before use.

1.7 PROJECT CONDITIONS

- A. Environmental Restrictions
 - 1. Temperature: Do not repoint masonry when the ambient temperature is below 45 degrees F, unless special provisions are made for heating materials and protecting the work, by providing and maintaining the temperature above 45 degrees F

during and for 72 hours subsequent to pointing.

- B. Stain Prevention: Immediately remove mortar and soil to prevent them from staining the face of masonry units.
 - 1. Protect walls and all existing and newly installed materials from rain-splashed mud and mortar splatter with coverings spread on the roof and over the wall surface.
 - 2. Protect sills, ledges and projections from mortar droppings.
 - 3. Protect surfaces of door and window frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Protect finished terrace/roof surfaces from mortar droppings.

1.8 GUARANTEE

- A. Caulking and Sealants:
 - 1. Provide a written, notarized guarantee from the manufacturer and the applicator stating that the applied sealants shall remain watertight for a period of two (2) years.
 - 2. Guarantee shall be in a form acceptable to Architect and the Owner and executed by an authorized individual.
 - 3. Guarantee shall further state that installed caulking is guaranteed against:
 - a. Adhesive or cohesive failure of joints where movement is under maximum of 30% extension or 20% compression.
 - b. Cracking greater than 3 mils in depth developing on surface of material.
 - c. Staining of surfaces adjacent to joints by sealants or primer by migration through building materials in contact with them.
 - d. Puncture and/or adhesion failure due to pedestrian traffic in self-leveling polyurethane sealant installed at horizontal surfaces.
 - e. Chalking, or visible color change on surface or cured sealant.
 - f. Increase or decrease of "Shore A" durometer hardness (5 second reading) sealant of more than 30% of value of 7 day value of "Shore A" durometer hardness of sealant.
 - 4. Include in the guarantee a provision to repair and/or replace at Contractor's expense, sealant defects which develop during guarantee period, because of faulty labor and/or materials.

PART 2 - PRODUCTS

2.1 MORTAR AND GROUT MATERIALS:

- A. Portland Cement: ASTM C 150, Type I, free from water soluble salts and alkalis. Only one brand and product of one plant shall be used for each mortar type.
- B. Hydrated Lime: ASTM C 207, Type S, not air-entrained.

- C. Aggregate for Mortar: ASTM C 144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve. Where mortar is exposed and is indicated to match existing (this is typical at all exterior masonry surfaces), provide same of special grade and color required to produce mortar matching color and texture of original mortar (with minimum addition of pigments) to the Architect's and Engineer's satisfaction.
- D. Aggregate for Grout: ASTM C404. Compressive strength of grout for use with unit masonry shall be at least equal to $f_m = 2,500$ pounds per square inch determined in accordance with the provisions of ASTM C1019.
- E. Water: Clean, potable water free from acids, alkalis, oils salts, organic matter and other deleterious substances.
- F. All pigments shall be inorganic oxides (natural or synthetic), light fast, alkali-resistant, and non-fading.

2.2 MORTAR AND GROUT MIXES

- A. Mortar: Provide mortar complying with ASTM C270 by proportion only. When mixing, use known, precise volume measures; do not batch by shovel. Mix consistently and uniformly.
 - 1. Type: Provide Type O mortar:
 - 1 Part by volume Portland Cement
 - 2 Part by volume Hydrated Lime
 - 9 Parts Sand and Oxide Pigments to match
- B. Grout: Provide grout complying with ASTM C476 and with consistency appropriate to conditions so that grout will completely fill all spaces intended to receive grout.
- C. Limitations: Use of admixtures or anti-freeze agents, masonry cement, calcium chloride or any compounds or mortar ingredients containing chlorides will not be permitted.

2.3 REINFORCEMENT, TIES AND ANCHORS

- A. Wire ties: 1/4" diameter stainless steel wire, grade 304.
- B. Clips and straps: 1/4" x 1 1/2" stainless steel grade 304.
- C. Anchor rod: 3/8" and 3/4" diameter stainless steel rods, grade 304.
- D. Hangers: 5/8" and 1/2" diameter stainless steel rods, grade 304.
- E. Pins and Dowels: 1/2" stainless steel rods, grade 304.
- F. Fire escape anchors: Hilti hy 150 max epoxy anchors, min 8" embedment, or approved equal.
- G. Wall Ties: Heavy Duty "D/A 52135 Seismic Veneer Anchors" with sheet metal pintel

and 9 gauge pencil rods in 304 stainless steel by Dur-O-Wal, Inc.

- H. All other ties, nuts, bolts and anchors to be stainless steel, grade 304.
- I. Rolled steel shapes and plates: Comply with ASTM A-276, grade 316 stainless steel specifications.
- J. Welding electrodes for ASTM A-276 stainless steel, grade 316 shall conform to AWS A5.4 for shielded metal arc welding, electrode class E316; or to AWS A5.9 for gas metal arc welding, electrode class ER316, (ft = 70Ksi). All welding to be done in shop.
- K. Ties, Clips, Anchor rods, Hangers, Pins, Dowels, Channels and attachments are to be by Hohmann and Barnard or approved equal.
- L. Proprietary Anchoring Devices: Stainless steel as indicated on the drawings and as manufactured by Hilti Corporation, P.O. Box 21148 Tulsa, OK (800 879-8000); and as manufactured by Cintec America Inc, 700 Cathedral Street, Baltimore, Maryland 21201, (800 363-6066).
- M. Brick ties: Corrugated stainless steel 2" x 16 ga. grade 304, anchored to existing masonry with 3/8" diameter epoxy anchor.

2.4 MIXING OF MORTAR

- A. The method of measuring materials on the job shall be such that the specified proportions of the mortar materials can be controlled and accurately maintained during the entire progress of the work.
- B. Unless otherwise particularly specified, all proportions shall be by volume.
- C. Pointing mortar shall be of as dry a consistency as will produce a mortar sufficiently plastic to be worked into joints.
- D. Mortar shall be pre-hydrated by mixing the dry ingredients (cementitious materials and aggregate) with only sufficient water to produce a damp mass of such consistency of brown sugar and only mix the amount of mortar that can be used within ½ hour of mixing.

PART 3 - EXECUTION

3.1 INSPECTION AND PROTECTION

- A. Study the contract drawings and specifications with regard to the work as shown and required under this Section so as to ensure its completeness.
- B. Prior to commencement of any work of this Section of the Contractor shall, in company with the Architect, inspect all existing surfaces which will be worked on under this Section in order to ascertain in detail which joints will be sealed and which will be

pointed, and all other work required under this Section. Commencement of work will be construed as evidence that such inspection has been performed, existing surfaces accepted as being in satisfactory condition for completion as specified, and agreement as to the scope and nature of each type of work has been reached.

- C. Cooperate in the coordination and scheduling of the work of this Section with the work of other sections so as not to delay job progress.
- D. Protection:
 - 1. Properly protect surfaces not being worked on at all times during operations. When rain is imminent and the work is discontinued, cover and protect all cut out joints not pointed or sealed, and all recently pointed stone for a period of not less than 72 hours after work or until rain ceases whichever is shorter with a strong waterproof membrane well secured in place, or other approved protective methods.
 - a. This includes protection from mortar drops.

3.2 CUTTING OUT JOINTS

- A. All existing mortar must be carefully removed. Hand cut, rotary tool, and/or diamond grinder blade cut and rake out all joints to sound material and point to a minimum depth of ¾" to 1" throughout. If power tools are approved for horizontal joints, they must be cut down the center of the joint and with hand tools remove the mortar attached to the masonry (See D.). All vertical joints in masonry must be hand cut.. In addition, wherever mortar is cracked, missing, or unsound, cut joints out until sound material is reached. Saw cutting will only be permitted in areas where this method is determined to be safe for adjacent masonry. The Owner and Architect reserve the right to reject all use of power tools and require hand cutting of all joints.
- B. Brush joints clean. Clean mortar out to a uniform depth, leaving square corners at back of cut.
- C. Flush raked joints with air jet to remove loose particles, dust and debris. Dampen (no free water) joints before pointing to reduce suction of masonry.
- D. Cutting out old mortar may be performed by hand tools, rotary tool with diamond bits, or by low speed electric grinder fitted with a diamond blade. If the Contractor elects to use an electric grinder he shall comply with the following conditions. This only applies to horizontal joints and brownstone vertical joints: (Vertical joints of brick to be by hand as described in 3.2 A).
 - 1. Blade shall be of a proper width of 1/8" or less so as not to widen the stone joint.
 - 2. Final cutting of joints in different directions, and at intersections of joints with protruding stones, shall be by hand tools.
 - 3. Edges of stone shall not be chipped.
 - 4. Corners of stone shall not be rounded or spalled.
 - 5. Saw cutting cannot touch surfaces of masonry. Should accidental cuts be made

in faces of stone and/or brick, or joints widened, edges chipped, corners rounded, or any other degradation of the quality of the masonry work occur as a consequence of using power tools, then the Contractor at no additional cost to the Owner shall replace such damaged stones or brick as determined by the Architect and cease to use such power tools and resort to manual techniques with hammer and chisel.

- E. Do not damage flashings, weep holes or other items built into masonry work.
- F. Damage to masonry by hammer and chisel is not acceptable.
 - 1. Edges of masonry shall not be chipped.
 - 2. Corners of masonry shall not be rounded or spalled.
 - 3. Should accidental cuts be made in the faces of masonry, or joints widened, edges chipped, corners rounded, or any other degradation of the quality of the masonry work occur, the Contractor, at not additional cost to the Owner, shall replace such damaged stones as determined by the Architect.

3.3 POINTING

- A. Force mortar into joints with sufficient pressure to insure joint is well packed. Use tool narrower than the joint width to pack the mortar solidly into the back of the joint. Should the existing joint be more than three quarters inch depth, place the new mortar in several layers or "lifts." Each preceding layer shall be thumbprint hard before allowing another layer to be placed. Strike off excess mortar and remove mortar droppings from adjacent surfaces.
- B. When the final layer of mortar is thumb print hard, tool the joint. Tooling of masonry joints shall be slightly recessed to avoid creation of a large thin featheredge which may be damaged.
- C. Where existing mortar has been removed (has fallen out or deteriorated) to a depth greater than 1", these places should be filled first, compacting new mortar in several layers. Once this has been completed, the back of the entire joint shall be filled by applying approximately 1/4" of mortar and packing in back and corners of the joint. As soon as the applied mortar has reached thumb print hardness, another layer of mortar of approximately the same thickness shall be applied. Several layers shall be applied until the joint is filled with the outer surface of the unit. Allow each layer time to lose much of the water and become stiff before the next layer is applied. When the final layer of mortar is thumbprint hard, the joint shall be tooled.
- D. Provide temporary shim supports where necessary to prevent displacement of masonry during re-pointing and until mortar has achieved sufficient strength.
- E. Rate of stiffening shall be controlled by dampening the stone and old mortar before beginning to fill the joint. Free water or excessive dampness in the joint shall be avoided.
- F. Recess slightly the final mortar surface on stone or brick with worn, rounded corners to

avoid leaving a joint which is visually wider than the actual existing historical appearance. Do not leave a featheredge.

- G. Curing of Mortars: Keep mortar from drying out too quickly. Freshly re-pointed mortar shall be maintained as described below.
1. Apply water to the re-pointed masonry in a fine, low-volume mist with a garden spray to maintain a damp environment for the first twenty-four hours. Do not wash out fresh mortar or damage joint details. Refer to manufacturer's guidelines for subsequent steps in curing. Ensure that curing occurs on schedule including Saturdays, Sundays, and holidays. Curing and protection may last for several months in extreme conditions after installation of mortar. Refer to manufacturer's guidelines for duration of curing in specific project conditions.
 2. Protect freshly re-pointed areas with damp burlap or cotton canvas, or both in extreme conditions, for the first seventy-two hours after installation. Keep burlap and canvas clean. Shield from direct sun and drying winds for the first seven days after installation.

3.4 CLEANING

- A. Cleaning: Take precautions against dropping or smearing pointing material. Clean off all pointing material from face of the stone, glass or any other part of the building as the work progresses. In the completed work, leave no pointing material beyond the lines of the joint. Insure thorough and neat work.
- B. Remove extraneous mortar particles with a bristle brush (non-ferrous material) after the mortar dries but before it hardens. If mortar has hardened remove with a wooden paddle.
- C. If further cleaning is necessary, it shall be done with plain water and bristle brush. No chemicals shall be used.
- D. Protect exposed surfaces, adjacent to joints from caulking and sealants, to prevent permanent staining and/or damage to adjacent work.
- E. Immediately after application of sealants, clean adjacent surfaces, which may have become soiled. Method and materials used for cleaning, compatible with all materials it makes contact with.
- F. Joints which are not properly sealed, show evidence of lack of adhesion or other defects, as determined by the Owner/Architect shall be cut-out and recaulked at no additional cost to Owner.

END OF SECTION 04510

SECTION 04520 - STABILIZATION AND RESTORATION OF EXISTING MASONRY

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment, and services necessary to furnish, deliver, and install the work of this section as shown on the drawings, as specified herein, and/or required by job conditions.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Work in this section includes, but is not necessarily limited to, the following items:
 - 1. Rebuild interior wythe of parapet masonry: disassemble damaged and deteriorated brick masonry units at interior wythe of parapet after stucco removal is complete. Rebuild interior wythe with new brick masonry units to match existing in color, profile, dimension, and bond pattern (allowance = 100%).
- B. Related work specified elsewhere:
 - 1. Section 02040 – Shoring and Bracing
 - 2. Section 02070 – Selective Demolition
 - 3. Section 04510 –Masonry Repointing and Caulking
 - 4. Section 04902 –Masonry Cleaning
 - 5. Section 07620 –Sheet Metal Flashing & Trim

1.3 QUALITY ASSURANCE

- A. Installer Qualifications
 - 1. The masonry work specified herein and indicated on the drawing shall be performed by a firm who can furnish supporting evidence of experience to perform this work and who has regularly been engaged in masonry restoration and installation on a full time basis for a period of not less than five (5) years.
 - 2. Qualifications of the subcontractor and the subcontractor's ability shall be subject to the review of the Architect.
 - 3. When using Jahn Patching Compound: All patch repairs must be performed by a mechanic who obtained a Training Workshop Certificate from the repair mortar manufacturer for Jahn. Contractor shall maintain proof of this credential for each installer at the site at all times. The mechanic must have a record of successful masonry patching for at least five years.
- B. Fire Performance Characteristics: Where indicated provide materials and

construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with ASTM E 119 by a recognized testing and inspecting organization.

- C. Source for Masonry Materials: Obtain exposed masonry materials from one manufacturer for each different product required.

1.4 SUBMITTALS

A. Shop Drawings

1. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcement" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.
2. Shop, fabrication, and setting drawings for all terra cotta units to be replaced and all salvaged and new units to be reset. Shop drawings shall include sections, dimensions, connections, and all anchorage details.
3. Identify masonry areas which are to be patched and/or field modified in variation from the contract documents.

- B. The Samples and Certificates listed below are required to be submitted by the Contractor for review. An omission of an item or items does not relieve the Contractor from this responsibility, and for compliance with the Contract Documents, of which this is part.

SAMPLES

<u>Item No.</u>	<u>Quan.</u>	<u>Size</u>	<u>Description</u>
S1	1	Actual	Stainless steel anchoring rods and pins.
S2	1	12" long	Finish mortar joint: profile, color, texture

SAMPLES CONTINUED

<u>Item No.</u>	<u>Quan.</u>	<u>Size</u>	<u>Description</u>
S3	EA.		Adhesives: color and composition.
S4	1	Actual	Each type of masonry unit
S5	1	Actual	Cushions/pads

NOTARIZED CERTIFICATES OF COMPLIANCE

<u>Item No.</u>	<u>Description</u>
C1	Pointing materials
	Portland cement ASTM C-150, non-staining
	hydrated lime ASTM C-207, Type S
	sand ASTM C-144

	Admixtures	As specified
C2	Mortar	ASTM C-270/BIA M1
C3	Stainless steel	Type 316 (18-8)
C4	Adhesives and patching	As specified

- C. Product data for each different masonry unit, accessory, and other manufactured product specified. Submit compressive strength and water absorption test data for masonry units as per ASTM C-67, compressive strength and water absorption test data for mortar as per ASTM C-270, and mortar composition and properties as per ASTM C-780.
- D. Certificates from the repair mortar Manufacturer for Jahn Restoration Mortars for mechanics installing patching compound. (Workshop offered by Cathedral Stone Products, Inc. (301) 317-4658).

1.5 REFERENCE STANDARDS

- A. For all work specified and implied by this Section:
1. American Concrete Institute (ACI) 530.1-95 Standard Specifications for *Masonry Structures*, latest edition.
 2. American Institute of Steel Construction (AISC)
 3. American National Standards Institute (ANSI)
 4. American Society for Testing and Materials (ASTM)
 5. Brick Institute of America (BIA)
 6. Federal Specifications (Fed. Spec.)
 7. Jahn Patching Specifications for Installation
 8. Natural Concrete Masonry Association (NCMA)
 9. Portland Cement Association (PCA)
 10. Secretary of the Interior's Standards for the Treatment of Historic Properties and related "Preservation Briefs"
 11. "Standard Specifications for Masonry Construction" latest edition

1.6 DESIGN GUIDELINES

- A. The drawings and specifications are to be considered as a design guide. All methods proposed and detailed by the Contractor must conform to these guidelines. In the interest of economy, fabrication, erection, weatherability or the ability to satisfy the performance requirements, internal conceptual design modifications may be made upon written acceptance from the Architect and provided the general design and intent of the drawings and specifications are maintained. The Contractor is required to make any and all changes that will benefit or enhance the design guidelines as described in the contract documents.
- B. Tolerances:
1. Erect masonry within the tolerances specified in reference standard RS 10-1B of the Building Code of the City of New York, except as modified herein.

2. Variations from true plane or flat surfaces shall be determined by use of a 4-foot straight edge, applied in any direction on the surfaces.
 - a. Maximum variation from plane of unit to adjacent unit: 1/32 inch.
 - b. Caulked Joints: 3/8" wide plus or minus 1/16".
 - c. Mortar Joints: no greater than 1/4".
 - d. Tooled existing masonry surfaces shall not exceed 1/8" relief from surface plane.
3. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2" in any 20' maximum wall length, nor 3/4" in 40' or more.
4. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness indicated by more than plus or minus 1/8", with a maximum thickness limited to 3/8" for brick, 1/4" for stone. Do not exceed joint thickness indicated on drawings or specified within by more than plus or minus 1/8".
5. Joint width shall match tolerances of the existing adjacent masonry.

1.7 JOB MOCK-UPS

- A. Mock-ups: Prepare field samples for restoration methods and cleaning procedures to demonstrate aesthetic effects and qualities of materials and execution. Use materials and methods proposed for completed Work and prepare samples under same weather conditions to be expected during remainder of Work.
 1. Locate mockups on the building where directed by the Architect.
 2. Masonry Repair: Prepare sample panels of size indicated for each material indicated to be patched, rebuilt, or replaced. Erect sample panels into an existing wall, unless otherwise indicated, to demonstrate the quality of materials and workmanship.
 3. Repointing: Prepare 2 separate sample areas approximately 36 inches (900 mm) high by 36 inches (1800 mm) wide for each type of repointing required; one for demonstrating methods and quality of workmanship expected in removing mortar from joints and the other for demonstrating quality of materials and workmanship expected in pointing mortar joints (See Section 04510 Masonry Repointing and Caulking).
 4. Notify Architect 7 days in advance of the dates and times when samples will be prepared.
 5. Obtain Architect's approval of mockups before starting the remainder of stone restoration.
 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site in the manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to approved samples.
- B. Units shall stay in their original packing material until ready for use. Store materials off the

ground in a dry, clean location. Remove materials which are damaged or otherwise not suitable for use from the job site.

- C. Delivered materials shall be identical to the previously acceptable samples and mock-up. Remove materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

1.9 JOB CONDITIONS

A. Environmental Requirements

1. Cold Weather Requirements: No masonry restoration work shall be executed in temperatures below 40 degrees F., unless adequate means are provided for maintaining a 40 degree F. temperature of the air and materials during and for 48 hours subsequent to the repair.
2. Hot Weather Requirements: Protect restoration work when temperature and humidity conditions produce excessive evaporation or water from mortar and patching materials. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above.
3. Apply stone patching treatment only when surface and air temperatures are between 50 and 90 deg F (10 and 32 deg C) and rain is not expected within 24 hours.
4. Protect mortar from too rapid drying by keeping work damp for no less than 48 hours after placing.
5. Chemical treatments of any type may only take place within the environmental perimeters approved by Manufacturers.

- B. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Immediately remove grout and mortar in contact with exposed masonry and other surfaces.

- C. Protect sills, ledges and projections from mortar droppings.

1.10 SEQUENCING AND SCHEDULING

- A. Order replacement materials at the earliest possible date, to avoid delaying completion of the Work.
- B. Provide a written description of Restoration sequencing for Architect's approval. Description shall include the following items minimally:
 1. Disassembly & Reassembly and replacement of damaged masonry. See Section 04515 – Masonry Disassembly and Reassembly.
 2. Repair existing brownstone cornice: composite patching.
 3. Repoint mortar joints at brick, terra cotta, and brownstone masonry.
 4. Masonry cleaning of brick and terra cotta masonry. See Section 04902 – Masonry

Cleaning.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Brick:
 - a. Belden Brick Co.
 - b. Consolidated Brick Co.
 - c. Glen-Gery Corporation.
 3. Cast Stone:
 - a. Essex Works Ltd.
 - b. Or Approved Equal.
 4. Portland Cement, Mortar Cement, Masonry Cement, and Lime:
 - a. Glen-Gery Corporation.
 - b. Lehigh Portland Cement Co.
 - c. Riverton Corporation (The).
 5. Composite Patching:
 - a. Cathedral Stone Products, Inc. (Jahn Restoration Systems)
 6. Joint Reinforcement, Ties, and Anchors:
 - a. Dur-O-Wal, Inc.
 - b. Hohmann & Barnard, Inc.
 - c. National Wire Products Industries.
- B. Brick Materials:
1. All brick shall match original existing bricks with reference to size, shape, color, texture, appearance, and character as determined by the Architect from submitted samples. All brick shall conform to:
 - a. ASTM C-62, Grade SW, Prism F'M = 1500 psi, solid brick.
- C. Mortar Materials:
1. Portland Cement: ASTM C 150, Type I, non-staining
 2. Masonry Cement: ASTM C 91.
 3. Mortar Cement: U.B.C. Standard No. 21-14.
 4. Hydrated Lime: ASTM C 207, Type S.
 5. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
 - a. For pigmented mortars, use colored portland cement-lime mix of formulation required to produce color indicated, or if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed 10 percent of portland cement by weight for mineral oxides nor 2 percent for carbon black.

6. Aggregate for Mortar: Sand: free of loam, silt, soluble salts and organic matter, conforming to size gradations of ASTM C-144; except for joints less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
 - a. Fine and medium sands with sub angular and sub rounded clear and white in color particles.
 - b. In as much as the color of the sand may affect the color of the mortar, the Architect reserves the right to select and approve sands on the basis of color as well as compliance to ASTM Specification C-144.
 7. White-Mortar Aggregates: Natural white sand or ground white stone. Sand: clean, sharp mason's sand conforming to ASTM C-144 and of a color acceptable to the Architect.
 8. Water: clean, potable and free of deleterious amounts of acids, alkalis, salts or organic materials.
 9. Admixtures shall not be used in mortar.
 10. Any pigments used on this project shall be Alkali-stable cement pigments. Recommended pigments are "Lansco" from Landers Segal Color Co. NJ (201) 779-5001, or equal.
 11. Colored masonry cements: mill mixed and pre-packaged before shipment under controlled conditions, composed of natural and manufactured pigments accurately weighted and batched. Inasmuch as the colors of the sand may affect the color of the mortar, the Architect reserves the right to elect and approve sands on the basis of color as well as compliance to ASTM Specification C-144.
- E. Specially formulated mortar patching material as manufactured by Jahn Mortars.

2.2 MORTAR MIXES

- A. Masonry mortar shall conform to ASTM C-270.
- B. Mixing
 1. Unless otherwise specified, conform with mortar mixing directions per Section 04510.
 2. Mix cementitious materials, admixture and aggregate with the proper amount of water which will result in a homogenous, stiff and plastic mix.
 3. Mix mortar in small batches by approved mixes. Monitor volume of materials per batch carefully.
 4. The ratio of admixture to other materials shall be in accordance with the instructions of the admixture manufacture.
 5. The proportions of materials for masonry patching and tuckpointing shall be prepared by the Contractor for each surface to be repaired and each joint to be tuckpointed.
 6. Prepare and submit samples as per paragraph 1.4 Submittals.
 7. Follow instructions of manufacturer. Mix only amount necessary for immediate use. Carefully measure materials. Match color and texture. Do not retemper tuckpointing mortar.
- C. Testing:

1. The right to require testing of masonry mortar or mortar materials is reserved by the Owner.
2. Testing shall be conducted in accordance with the provisions of the ASTM Specifications C-270 for masonry mortars or the applicable ASTM Specifications covering the individual mortar materials.
3. Certified test reports by an independent testing laboratory will be furnished by the Contractor upon request of the Architect. The costs of tests shall be borne as follows:
 - a. If the results of the test show that the mortar does not conform to the ASTM specifications, the cost shall be borne by the Contractor.
 - b. If the results of the test show that the mortar does conform to the ASTM Specifications, the cost will be borne by the Owner.

D. Pointing Mortar for all masonry work.

See Section 04510.

E. Setting Mortar for all masonry work.

See Section 04510.

2.3 ADHESIVES & GROUTS

- A. Mortar to Stone Adhesive: High modulus, high strength moisture insensitive epoxy adhesive with a pot of life of 30 minutes at 40 degrees F such as Sikadur Hi-Mod 370 Adhesive or approved equal.

2.4 JOINT REINFORCEMENT, TIES AND ANCHORS

- A. Materials: Comply with following requirement for basic materials and with requirements for each joint reinforcement, tie and anchor.
1. All anchoring devices shall be Type 316 stainless steel ASTM F 593. Galvanized devices will not be permitted.
 2. Stainless steel wire, Grade 316.
 3. Stainless steel corrugated sheets/straps, Grade 316.
- B. Joint reinforcement: Provide welded-wire units prefabricated with deformed continuous side rods and plain cores rods into straight length of not less than 10' with prefabricated corner and tee units, and complying with requirements indicated below:
1. Width: Side rods shall be the thickness of shell walls and partitions, to provide mortar coverage of not less than 5/8" on exterior joint faces and 1/2" elsewhere.
 2. Wire Size for Rods: 0.1483" diameter.
 3. For single-wythe masonry provide ladder type with cross rods 16" o.c and with single pair of side rods.

4. For multi-wythe masonry provide ladder type with cross rods 16" o.c with one side rod for each face shell of hollow masonry units more than 4 inches in nominal width plus per side rod for each wythe of masonry 4 inches or less in nominal width.
- C. Bent-Wire Ties: Provide individual prefabricated bent-wire units complying with requirements indicated below with additional ties at opening edge, wall end.
1. Wire Size: 0.1875" diameter:
 2. Length: Provide units for 1 1/2" embedment, with not less than 5/8" mortar cover on exterior face joints, 1/2" elsewhere.
 3. Ties for Hollow Masonry Units: Rectangular with ends welded close and not less than 2" wide.
- D. Anchor Bolts: Provide steel bolts with hex nuts and flat washers complying with ASTM A 276, Grade 316, stainless steel, in sizes and configuration indicated.
- E. Adjustable Anchors: Provide 2 piece anchors for connecting masonry to structure, to permit vertical or horizontal movement between wall and framework parallel to, but resist forces perpendicular to, plane of wall.
1. For anchorage to structural concrete substrate, provide standard anchors with dovetail section of 0.1046" (12 gauge) thick sheet metal and triangular-shaped wire tie section sized to extend within 1" of masonry face.
 2. For anchorage to steel framework provide standard anchors with crimped 1/4" diameter wire for welding to steel and triangular-shaped wire tie section sized to extend within 1" of masonry face. Wire Size: 0.1875" diameter (7 gauge).
- F. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
1. Dur-o-wal, Inc.
 2. Hohmann & Barnard, Inc.
 3. National Wire Products Corp
 4. RKL Building Specialties Company, Inc.
 5. Heckman Building Products
 6. or an acceptable equal.

2.5 EPOXY FOR SETTING PINS

- A. High modulus, gel type epoxy such as Sikadur Hi-Mod Gel (Sikastix 390) as supplied by Sika Corporation, or as approved equal. Color to match stone as closely as possible as approved by architect.
- B. Hilti Hit System for structural pins with stainless steel threaded rods.

2.6 EMBEDDED FLASHING MATERIALS

- A. Sheet-Metal Flashing: Comply with requirements for through wall flashing and exposed flashing as specified in Section 07620 – Sheet Metal Flashing and Trim,

2.7 MISCELLANEOUS ITEMS

- A. Cushions to maintain joints: lead or plastic buttons, 1 1/2” diameter x 1/4” thick and/or 1” x 1” x 1/4” thick, set back from stone faces to permit backup and sealant.
- B. Rope weeps: 1/4” cotton rope weep
- C. Non-shrink grout and anchoring cement for setting top stone anchors shall be manufactured by one of the following:
 - 1. Lehn & Fink Industrial Products - Por-Rok
 - 2. Sonneborn/Contech
 - 3. Master Builders
 - 4. Sika Chemical
- D. Sealant for bottom of anchoring devices and for anchoring devices at expansion locations shall be a one-part silicone conforming to Fed. spec. TT-S-00230 and shall be manufactured by one of the following:
 - 1. General Electric
 - 2. Tremco Inc.
 - 3. Dow Corning
- E. Gaskets used in conjunction with angle type anchoring devices: neoprene extrusions having a Shore A hardness of 75 dense and shall conform to NAAMM SG-1.
- F. Sealant at exposed metal penetrations: See Section 04510.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine surfaces and conditions to which this work is to be attached or applied and notify the Architect if conditions or surfaces exist which are detrimental to the proper and expeditious completion of the work. Starting on the work shall imply acceptance of the surfaces and conditions to perform the work specified.
- B. The Contractor shall inspect surfaces prior to the time masonry repairs are to take place. These operations are to be coordinated with the other operations or other trade contractors, and Contractor shall exercise means and methods to protect all elements of the Work.
- C. Verify dimensions taken at the job site affecting the work. Bring field dimensions which are at variance to the attention of the Architect. Obtain decision regarding corrective measures before the start of work.

3.2 PREPARATION

- A. Clean the surfaces of each masonry unit before setting by removing foreign matter that might impair the bedding, bonding or appearance of the work. During setting operations dirt or setting materials in contact with exposed surfaces of the work shall be immediately removed.
- B. Surfaces to which this work is to be secured and the surfaces themselves shall be free from frost, wetness, dirt, grease, visible rust, and foreign materials which will be detrimental to the proper execution of the work.

3.3 ERECTION AND INSTALLATION

A. General Requirements

1. Perform masonry restoration work using skilled workmen, in accordance with the recommendations and the reviewed shop and setting drawings.
2. Before setting, clean masonry so it is free of ice and frost. Remove dirt and other foreign materials which will cause hindrance during the erection and installation operations.
3. Exercise care to protect work already in place. Repair work damaged as a result of these operations at no additional cost and to satisfaction of the Architect.
4. In dry and hot weather, wet masonry before using.
5. Lay masonry plumb, true to line, and with courses level. Keep bond plumb and uniform. Build masonry walls plumb to lines, laid in full beds of mortar with joints slushed solidly with mortar in each course.
5. Unless otherwise noted joints between masonry units and joints between masonry units and other materials shall match existing joint width of the structure.
6. No bricks less than 3-1/2" long will be permitted, unless otherwise noted.
7. No cutting of terra cotta in the field will be permitted.
8. Rake back unfinished work where possible, and tooth only where absolutely necessary. Before leaving fresh or unfinished work, cover walls and protect against rain and wind. Before continuing work previously laid, sweep clean.
9. Cover and protect the tops of walls and all unfinished work when not being worked on, by means of waterproof paper, tarps, or other means, and thermal blankets as temperature conditions warrant.
10. Install caulking for joints as part of the work of this section in accordance with the applicable requirements of the Caulking Section 04510.
11. Keep face of masonry work free of mortar and protected against damage at all times. Remove excess mortar promptly.
12. Bolts and lock nuts shall be drawn uptight and the threads shall be nicked to prevent movement after the stone elements are in their proper locations.

3.4 INSTALLATION OF BRICK MASONRY

A. Solid (Bonded) Walls:

1. Mortar joints, full above joints, made so, by the action of laying the masonry. The ends of the masonry shall be buttered with sufficient mortar taken directly from the mortar board. Closures may be rocked into place with head joints thrown against the two adjacent masonry in place. Mortar beds shall be smooth. Vertical joints shall be of the same width except for inconspicuous variations required to maintain the bond.
 2. Back joints against other brick or block units shall be slushed, grouted, or shoved full, as the course is laid.
 3. Mortar joints to match original and adjacent walls on backup masonry. Tooth all new masonry to existing masonry joints.
 4. Vertical and horizontal joints shall be of uniform width but shall be adjusted for each space between openings in walls so that no closures will be required at jambs or external corners. Horizontal joints shall be tooled to a dense, smooth, weathered concave profile, after mortar has attained its initial set, and in such a manner as to compact the surface mortar to prevent shrinkage cracks. Joints shall be not under 1/8" nor over 3/8" wide, unless otherwise shown or approved.
 5. Accurately layout the face work to coursing to accommodate conditions encountered in the field.
 6. Bond the wythes together using the masonry bond and brick ties as required.
 7. Install repair anchors as required.
- B. Brick to match original existing pattern appropriate to its location. Before removal of brick verify in field masonry bond.

3.5 HORIZONTAL JOINT REINFORCING

- A. General: Install continuous joint reinforcement with side rods embedded in mortar, with minimum cover of 1/2". Lap reinforcement a minimum of 6".
- B. Cut or interrupt joint reinforcement at control joints.
- C. Reinforce walls with continuous horizontal joint reinforcing unless specifically noted to be omitted.
- D. Provide continuous horizontal reinforcing as required by code but not less than 16" o.c vertically.
- E. Reinforce masonry opening over 1'-0" wide with joint reinforcing in 2 joints immediately above lintel and below sill. Extend reinforcing 2 feet beyond jambs of the opening, except at control joints.

3.6 ANCHORING BRICK MASONRY WORK

- A. Provide an air space as shown between masonry and structural members. Keep free of mortar or other rigid materials.
- B. Anchor masonry to structural members with flexible metal ties embedded in masonry joints and attached to structure.

- C. Space masonry anchors not more than 16" o.c vertically and 16" o.c horizontally.

3.7 REPOINTING AND CAULKING FOR FILLING OF MASONRY CRACKS (Where noted on drawings or directed by Architect. See also 3.9: In-situ Crack Repair)

- A. Rake out all joints 1/8" or less in width by hand using a chisel. Clean all mortar from surfaces within the joint or crack so that the new pointing mortar bonds to the building material and not to old mortar. Do not chip or spall edges of the stone.

- B. Joint depth to be at least 3/4" to 1" or to sound mortar as required.

- C. Flush joints or cracks to remove all dirt and loose debris.

- D. Vertical Joints (mortar method)

1. Prior to pointing, dampen masonry surface.
2. Pack joints and cracks with pointing mortar leaving no voids. Clean mortar from face of masonry and joints. Remove droppings and splashed mortar immediately. Save stone dust for crack treatments.
3. For mortar stone joints, tool joints to match adjacent joints.
4. For fixed cracks in stone surfaces, cut out and clean crack as required. Pack jointing mortar tightly and tool flush with stone surface and treat as required to match existing stone surfaces.
5. Keep joints damp until mortar has set.

- E. All horizontal joints in wash surfaces (sealant method).

1. Prepare encountered cracks and joints so that they are 1/4" to 3/8" wide by not less than 3/4" deep.
2. Thoroughly clean joint of dirt, dust, oil and foreign materials.
3. Place continuous backer rod allowing 1/4" space between stone face and backer rod.
4. Install gun grade one part silicone sealant and tool to proper profiles. Mask joints to prevent stone staining as required.
5. Tool smooth and level with stone surface. Do not allow sealant to extend over edges of the stone. Sprinkle sand or caulk to reduce reflectivity.
6. Clean sealant from stone face immediately.
7. Where depth of cleaned and raked joints is larger than one (1) inch, the joint shall be backpointed to an appropriate depth before commencing placement of backer rod and sealant.

3.8 INSTALLATION OF PINS OR CRAMPS IN EPOXY GROUT

- A. The intent of this portion of the work is to anchor and/or repair pieces of stonework which have cracked, dislodged, or are otherwise in danger of falling in/situ. This method may also be used to secure sections of stone removed from the building for other operations.

- B. Drill 3/8" diameter hole through stone to be anchored at least 4 inches into back up masonry. Hole shall not be drilled deeper than length of anchor to be used. Hole shall not be drilled horizontally or downward to a maximum angle of thirty degrees from the horizontal. There are to be at least two pins per section or as directed by Architect.
- C. Remove all dust and debris from hole using compressed air. Degrease and clean stainless steel threaded anchor 1/4" inch (O.D.) prior to inspection.
- D. Install anchors, ie using Hilti Hit.
- E. Recess pins 1/8" to receive caulked finish - sprinkle with sand or crushed stone to match color of dutchman and to decrease reflectivity.
- F. Use stainless steel 3/8" diameter wire cramps in epoxy as specified and as required for securing stone requiring further support. Notch stone to receive cramp device, so that it is recessed 1/8" into the surface of the stone. Caulk over cramp so as to produce a flush surface.
- G. Remove excess epoxy compound which drips out as the pin is inserted using scraper and rags soaked in solvent such as "xylol" taking care not to stain stonework. Any staining which does occur must be removed by secondary treatment upon notice of the Architect.
- H. Do not use epoxy when 24 hour mean temperature is below 40° F.
- I. Size of anchor rod, and as result, hole and depth of embedment may be altered to 3/8 inch (O.D.) stainless steel threaded rod as directed by Architect for larger stone sections to be secured.

3.9 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

3.10 POINTING, CLEANING & PROTECTION

- A. After the pointing mortar has reached its initial set, tool with a jointing tool, compressing the mortar well against the faces of the masonry units to produce a weathered joint profile for the horizontal joints and a recessed joint, to match original for the vertical joints.
- B. Thoroughly clean adjacent work where it has become soiled as a result of work under this section in a careful manner to avoid scratching or other defacement.
- C. Cut out and replace damaged or otherwise defective work with new, so as to leave all work in satisfactory condition.

- D. The use of muriatic acid solution will not be permitted. Use reasonable means to keep the masonry work clean while being laid and particularly to keep it free from mortar on exposed surfaces.

3.11 ADJUSTMENTS AND CLEANING

- A. Protect installed masonry work from damage by proper and adequate means. Wood which may stain or deface the stone shall not be used.
- B. After completion of other work, and after removal of protective materials, clean the masonry work of foreign matter and carefully wash and scrub down using approved and recommended means and methods.
- C. Remove and replace surfaces which have become damaged, or stained, during or after work with acceptable material at no additional cost and as directed by Architect.
- D. Keep face of masonry work free of mortar and protected against damage at all times. Remove excess mortar promptly.

3.12 MASONRY WASTE DISPOSAL

- A. Recycling: Undamaged, excess masonry materials are Contractor's property and shall be removed from the Project site for his use.
- B. Excess Masonry Waste: Remove excess clean masonry, masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04520

SECTION 07560 – COLD FLUID-APPLIED WATERPROOFING SYSTEM

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. Work in this Section shall include, but is not necessarily limited to, the following:
 - 1. T1 Provide and install new Kemper cold-fluid applied roofing membrane system and flashing at main and portico roofs (Allowance = 5,892 sf). Provide rubber maintenance pads at Main Roof.
 - 2. T2 Provide and install (2) new cast iron combination roof drains and overflows with covers, including domes, elbows, and connections as indicated on the drawings.
- B. Related work specified elsewhere:
 - 1. Section 06105 – Miscellaneous Carpentry & Wood Restoration
 - 3. Section 07620 – Sheet Metal Flashing and Trim
 - 3. Section 07900 – Joint Sealers

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing cold fluid-applied reinforced polyurethane system with a minimum of 20 years of documented experience with applications in the United States.
- B. Installer Qualifications: Company specializing in performing the work of this section with a minimum of 3 years documented experience and approved by system manufacturer for warranted membrane installation.
- C. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress
- D. Manufacturer's Field Service: Membrane manufacturer shall provide the services of a competent field representative on-site to provide the following inspections:
 - 1. Job start inspection at the beginning of each phase of the project, to review special detailing conditions and substrate preparation.
 - 2. Periodic in-progress inspections throughout duration of the project to evaluate membrane and flashing application.
 - 3. Observe field quality control testing.
 - 4. Final punch-list inspection at the completion of each phase of the project prior to installation of any surfacing or overburden materials.
 - 5. Warranty inspection to confirm completion of all punch list items, and surfacing.

- E. Source Limitations: Obtain all principal components of roofing/waterproofing system from a single manufacturer. Secondary products that are required shall be as recommended and approved in writing by the roofing/waterproofing system manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the manufacturer.
- F. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Prepare and clean a 3 foot (0.9 m) by 3 foot (0.9 m) area of each substrate material type anticipated and located in areas designated by Architect.
 2. Test each area to verify that substrate preparation meets specified requirements. Tests shall include tensile bond strength and moisture content of substrate.
 3. Do not proceed with the work until test results and workmanship are approved by Architect.
 4. Rework mock-up area as required to produce acceptable work.
 5. Maintain mock-up for quality control during the progress of the remaining work.
- G. Electronic Field Vector Mapping (EFVM) testing is required on the completed membrane prior to the installation of overburden as part of the final field quality control. EFVM testing shall be arranged through the membrane manufacturer and performed by International Leak Detection (ILD) or an approved testing company. Check project compatibility with the membrane manufacture and ensure that all necessary components for the EFVM testing are included in the design. Testing shall be observed by the manufacturer's field service representative.
- H. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing/waterproofing system installation and associated work.
- I. Require attendance of installers of substrate construction to receive roofing/waterproofing, installers of work in and around roofing/waterproofing which must precede or follow roofing/waterproofing work including mechanical and electrical penetration, equipment openings, subsequent finish work, and the Architect, Owner, and roofing/waterproofing system manufacturer's representative.
- J. Objectives include:
1. Review foreseeable methods and procedures related to roofing/waterproofing work, including set up and mobilization areas for stored material and work area.
 2. Tour representative areas of roofing/waterproofing substrates, inspect and discuss condition of substrate, penetrations and other preparatory work.
 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 4. Review roofing/waterproofing system requirements, Drawings, Specifications and other Contract Documents.
 5. Review and finalize schedule related to roofing/waterproofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 6. Review required inspection, testing, certifying procedures.
 7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
 8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending

1.4 SUBMITTALS

- K. Submit under provisions of Section 01300.
- L. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Product Literature.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
 - 5. Safety Data Sheets (SDS) for all components.
- M. Shop Drawings: Show including plans and details of cool insulated roof waterproofing system including membrane, penetration flashings, base flashings, and expansion joints size, flashing details, and attachment.
- N. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, thickness, color, texture and surfacing.
- O. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- P. Field Quality Control: Submit the following.
 - 1. Daily inspection and testing reports
 - 2. Substrate and Bond Testing Reports
 - 3. Completed Membrane Reports
- Q. Closeout Submittals: Submit roofing/waterproofing manufacturer and applicator's warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.5 REFERENCE STANDARDS

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.
- B. American Society for Testing and Materials (ASTM)
 - 1. ACI-308 - Recommended Practice for Curing Concrete
 - 2. ASTM C 96 - Test Method for Specific Gravity and Absorption of Fine Aggregate
 - 3. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - 4. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
 - 5. ASTM D 570 - Standard Test Method for Water Absorption of Plastics
 - 6. ASTM D 1204 - Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
 - 7. ASTM D 2240 - Standard Test Method for Rubber Property Durometer Hardness
 - 8. ASTM D 4259 - Standard Practice for Abrading Concrete
 - 9. ASTM D 5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material

10. ASTM D 6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
11. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
12. ASTM E 96 - Tests for Water Vapor Transmission of Materials in Sheet Form
13. ASTM E 831 - Standard Test Method for Linear Thermal Expansion of Solid Materials by Thermomechanical Analysis
14. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
15. ASTM 2420 - Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floors Slabs using Relative Humidity Probe Measurement and Insulated Hood
16. SSPC - Steel Structures Painting Council painting standards.
17. CRRC (Cool Roof Rating Council) - Standard 1
18. FM - Approvals Guide
19. FM Loss Prevention Bulletin 1-49
20. SMACNA - Architectural Sheet Metal Manual

1.6 PRE-INSTALLATION MEETING

- A. Convene a pre-installation meeting at the job site (2) weeks before starting work of this section.
- B. Require attendance of parties directly affecting work of this section, including but not limited to, installers of substrate construction to receive waterproofing, Architect, Owner or Owner's Agent, Waterproofing Contractor, and Membrane Manufacturer's Representative.
- C. Objectives include:
 1. Review foreseeable methods and procedures related to waterproofing work, including set up and mobilization areas for stored material and work area.
 2. Tour representative areas of waterproofing substrates, inspect and discuss condition of substrate, penetrations and other preparatory work.
 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 4. Review waterproofing system requirements, Drawings, Specifications and other Contract Documents.
 5. Review required inspection, testing, certifying procedures.

1.7 DELIVERY, STORAGE, AND PROTECTION HANDLING

- A. Store products in manufacturer's unopened packaging with labels intact until ready for installation.
- R. Store materials off the ground or on pallets, under cover and in a cool, dry location, out of direct sunlight, in accordance with manufacturer's recommendations. Store roll goods horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. Do not use rolls that are wet, dirty or have damaged ends. Materials must be kept dry at all times.

- S. Follow manufacturer's directions for protection of materials prior to and during installation. Do not use materials that have been damaged to the point that they will not perform as specified. Fleece reinforcing materials must be clean, dry and free of all contaminants.
- T. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- U. Maintain copies of all current SDS for all components on site. Provide personnel with appropriate safety data information and training as it relates to the specific chemical compounds to be utilized.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
- C. Application of waterproofing membrane may proceed while air temperature is between 40 degrees F (5 degrees C) and 90 degrees F (30 degrees C) providing the substrate is a minimum of 5 degrees F above the dew point.
- D. When ambient temperatures are at or expected to fall below 50 degrees F (10 degrees C), or reach 85 degrees F (30 degrees C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.
- E. Ensure that substrate materials are dry and free of contaminants. Do not commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.

1.9 COORDINATION & PROTECTION

- A. Coordinate the work with the installation of other work in project as the work of this section proceeds.
- B. Building components shall be protected adequately (with tarp or other suitable material) from soil, stains, or spills at all hoisting points and areas of application. Contractor shall be responsible for preventing damage from any operation under its Contract. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
 - 1. Protect finished waterproofing membrane from damage by other trades. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, etc. or direct steam venting to come into direct contact with the membrane.

1.10 WARRANTY

- A. Manufacturer's Premier Warranty: Provide 20 year manufacturer's premier warranty that provides for cost of labor and materials for loss of watertightness, limited to amounts necessary to effect repairs necessitated by either defective material or defects in related installation workmanship, with no dollar limitation ("NDL").
- B. Roofing/waterproofing applicator's Warranty: Provide 5 year "Applicator Maintenance Warranty" covering workmanship for all work of this section including installation of membrane, flashings, metal work, and roofing/waterproofing accessories.

1.11 MATERIAL SUBSTITUTIONS

- A. Materials proposed for use in the performance of the work that are not specified herein must be submitted to the Owner/Owner's Representative for evaluation no later than ten days prior to bid.

1.12 SEQUENCING

- A. Apply roofing/waterproofing in a timely manner in conjunction with work of other trades. Coordinate with other trades to avoid traffic over or against completed membrane surfaces.
- B. Coordinate with installation of drains as shown on Drawings, including flashing, and associated roofing/waterproofing work.
- C. Field Quality Control:
 - 1. On-Site Substrate Testing of substrates shall be successfully completed prior to installation of roofing/waterproofing membrane.
 - 2. Field Quality Control Tests of completed sections of waterproofing membrane shall be successfully completed before proceeding with protection layers and overburden. Schedule tests promptly to allow timely installation of protection layers.

1.13 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
- C. Application of roofing/waterproofing membrane may proceed while air temperature is between 40 degrees F (5 degrees C) and 90 degrees F (32 degrees C) providing the substrate is a minimum of 5 degrees F above the dew point.
- D. When ambient temperatures are at or expected to fall below 50 degrees F (10 degrees C), or reach 85 degrees F (30 degrees C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.
- E. Ensure that substrate materials are dry and free of contaminants. Do not commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.

- F. Where required by the Architect, implement odor control and elimination measures prior to and during the application of the roofing/waterproofing materials. Control/elimination measures shall be field tested at off-hours and typically consists of 1 or a multiple of the following measures:
1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air.
 2. Sealing of doorways, windows, and skylights with duct tape and polyethylene sheeting to prevent leakage of air into the building.
 3. Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for resin mixing station. Enclosure shall be field constructed or pre-manufactured of fire retardant materials in compliance with local requirements in accordance with requirements of the Owner or his designated Representative. Provide enclosure(s) with mechanical air intake/exhaust openings and Odor Control Air Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure. Exhaust opening shall be sealed with activated carbon filter
 4. Protection of Contractor personnel and occupants of the structure and surrounding buildings as necessary to comply with requirements of OSHA, NIOSH and/or governing local authority.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The products herein specified are totally pre-engineered products of the listed manufacturer and establish criteria for the approval of substitutions. Substitute materials must meet or exceed the physical performance characteristics of the specified materials.

2.2 MANUFACTURERS

- A. Acceptable Manufacturer:
Kemper System America, Inc.
1200 North America Drive
West Seneca, NY 14224
P: 800-541-5455
E: inquiry@kempersystem.com
W: www.kemper-system.com/us/eng/
1. Local Contacts:
 - a. Architectural/Engineering:
Jae Horbacz
P: 347-949-0371
E: jhorbacz@kempersystem.com
 - b. Waterproofing/Roofing Contractor:
Krzys Dobrzanski
P: (201) 679-9640
E: kdobrzanski@kempersystem.com

Jeremy Naves
P: (551) 804-6329
E: jnaves@kempersystem.com

Giusto Iuculano
P: (347) 437-1920
E: giuculano@kempersystem.com

B. Or approved equal.

2.3 PRODUCTS – MEMBRANE

- A. General: Materials shall be products of a single manufacturer or items standard with manufacturer of membrane roofing/waterproofing system. Provide secondary materials that are produced or are specifically recommended by manufacturer of membrane roofing/waterproofing system to ensure compatibility.
- B. Monolithic Membrane: Kemper System America's monolithic membrane is created in the field by combining the KEMPEROL Reflect 2K FR two-part, cold fluid-applied reactive cure polyurethane resin with Kemperol polyester reinforcing fleece. Kemperol polyester reinforcing fleece is a 360 degree needle punched non-woven 165 g/m2 polyester reinforcing fleece, for a finished dry film membrane thickness of .080 inch nominal per ply. Moisture-cured, polymethyl-methacrylate (PMMA), MMA and aromatic polyurethanes are not permitted. Membrane shall have the following properties:
1. Physical Properties: All times are approximate and depend upon air flow, humidity and temperature.
 - a) Color: Bright White
 - b) Physical State: Cures to Solid
 - c) Solar Reflectance (initial) CRRC Rated 0.87, ASTM C 1549
 - d) Thermal Emittance (initial) CRRC Rated 0.90, ASTM C 1371
 - e) SRI (initial) 110, ASTM E 1980
 - f) Thickness (165 Fleece): 80 mils
 - g) VOC Content: 2.0 g/l
 - h) Peak load @ break 70 lbf CMD - 100 lbf MD, ASTM D 4073
 - i) Elongation: Min 30 percent, ASTM D 5147
 - j) Tearing Strength 60.0 lbs/in, ASTM D 4073
 - k) Dimensional stability D 1204: 0.15 percent
 - l) Puncture resistance FTMS 101-2031: 140 lbs.
 - m) Water absorption D 570: Less than 3 percent
 - n) Impact resistance D 2240: Shore A 75 plus or minus 15 percent
 - o) Crack spanning: 0.08 inch (2 mm)
 - p) Usage time: 30 minutes
 - q) Rainproof after: 2 hours
 - r) Solid to walk on after: 24 hours
 - s) Completely hardened: 3 days
 - t) Short-term temperature resistance: 482 degrees F (250 degrees
- C. Membrane Flashings: Composite of the same resin material as field membrane with 165 g/m2 fleece reinforcement.
- D. Substrate Primer and Resin Additives:

1. Polyurethane Primer: Kempertec D/R primer ,two-component, solvent-free polyurethane resin for use in improving adhesion of membrane to wood, metal and bituminous substrate surfaces.
2. Epoxy Primer: Kempertec EP/EP5 primer, two-component, solvent-free epoxy resin for use in improving adhesion of membrane to cementitious/masonry substrate surfaces.
3. Cold Weather Additive: Kemperol A 2K-PUR Accelerator, additive specifically designed to accelerate the resin reaction time at ambient temperatures below 50 degrees F (10 degrees C). Accelerator to be used with resin Component A prior to mixing of multi-component resin.

E. Cap Sheet:

1. APP Cap Sheet: KEMPER APP CAP FR, Mineral-surfaced polyester-reinforced APP-modified bitumen cap sheet conforming to ASTM D 6222, suitable for torch application.
 - a) Properties:
 1. Granule colors: White, Black
 2. Physical state: Granulated surface
 3. Nominal thickness: 4.1 mm (160 mils)
 4. Tensile strength (0 degrees F): 150 lbf CMD. 95 lbf MD, ASTM D 6222
 5. Tensile strength (77 degrees F): 100 lbf CMD. 75 lbf MD, ASTM D 6222
 6. Elongation (0 degrees F): 50 percent CMD. 40 percent MD, ASTM D 6222
 7. Elongation (77 degrees F): 85 percent CMD. 60 percent MD, ASTM D 6222
 8. Tear resistance (77 degrees F): 100 lbf CMD. 140 lbf MD, ASTM D 6222
 9. Cold flexibility: minus 30 degrees C, ASTM D 6222
2. SBS Cap Sheet: Mineral-surfaced fiberglass or polyester-reinforced SBS-modified bitumen cap sheet conforming to ASTM D 6163 (fiberglass) or ASTM D 6164 (polyester), suitable for torch, hot asphalt, or self- adhered application.

F. Insulation:

1. Flat Foam Insulation Polyisocyanurate Insulation with Non-asphaltic Fiber Reinforced Facers (Hunter Panel - H-Shield) or approved equal: Meeting or exceeding the requirements for ASTM C 1289, Type II with the following characteristics:
 - a) ASTM C 1289, Type II, Class 2:
 1. Grade 2 (20 psi)
 2. Grade 3 (25 psi)
 - b) Board Size:
 1. 48 by 48 inches
 2. 48 by 96 inches
 - c) Minimum Board Thickness: 1.5 inches.
 - d) R Value: Provide Insulation with LTTR (Long Term Thermal Resistance) in accordance with ASTM C 1289
 - e) Board Edges: Square
2. Tapered Polyisocyanurate Insulation with Non-Asphaltic Fiber Reinforced Facers: Hunter Panel-H-Shield or approved equal, 1.0 inch minimum thickness, with the following characteristics:
 - a) ASTM C 1289, Type II, Class 1:

1. Grade 2 (20 psi)
 2. Grade 3 (25 psi)
 - b) Board Size:
 1. 48 by 48 inches
 2. 48 by 96 inches
 - c) Total Thickness: As required to achieve an average R value of 30 for tapered insulation system.
 - d) R Value: Provide Insulation with LTTR (Long Term Thermal Resistance) in accordance with ASTM C 1289
 - e) Board Edges: Square
 - f) Slope of tapered board shall be:
 1. 1/16 inch (2 mm) per foot.
 2. 1/8 inch (3 mm) per foot.
 3. 3/16 inch (5 mm) per foot.
 4. 1/4 inch (6 mm) per foot.
 5. 3/8 inch (10 mm) per foot.
 6. 1/2 inch (12.5 mm) per foot.
 7. Slope as indicated on the Drawings
- G. An Electronic Field Vector Mapping (EFVM) is to be installed between the insulation and cover board. System testing is required on the completed membrane prior to the installation of walkway resin/aggregate coatings as part of the final field quality control. EFVM testing shall be arranged through the membrane manufacturer and performed by International Leak Detection (ILD) or an approved testing company. Check project compatibility with the membrane manufacture and ensure that all necessary components for the EFVM testing are included in the design. Testing shall be observed by the manufacturer's field service representative.
- H. Insulation Cover Board:
1. Cement Roof Board: USG - SECUROCK Cement Board, high compressive strength, non-combustible, roof underlayment board consisting of aggregated Portland cement slurry with polymer-coated glass-fiber mesh, with the following characteristics:
 - a) Board Weight: 2.4 lbs/sq.ft.
 - b) Board Size: 48 by 48 inches and 48 by 96 inches
 - c) Board Thickness: 1/2 inch
 - d) Flexural Strength: >750 psi, parallel, per ASTM C 947
 - e) Compressive Strength: >1000 psi nominal
 - f) Flute Spannability: 12 inches, per ASTM E 661
 - g) Permeance: 5.84 perms, per ASTM E 96
 - h) Thermal Conductivity: R-value of 0.39 as determined by ASTM C 518
 - i) Coefficient of thermal expansion: 4.5 by 106 per ASTM E 831
 - j) Linear variation w change in moisture: <0.07 percent maximum per ASTM D 1037
 - k) Water absorption: <15 percent maximum per ASTM C 473
 - l) Mold resistance: 10 per ASTM D 3273
 - m) Board Edges: Square
- I. Insulation and Cover Board Securement:
1. Foamable Adhesive: Millennium One Step Foamable Adhesive is a highly elastomeric, one-step, all-purpose, foamable adhesive that contains no solvents. It is designed for

use as an adhesive for bonding approved roof insulation and cover board to a building's structural roof deck, base sheets, and smooth or properly prepared graveled built-up roof surfaces. Roofing adhesive shall be a type approved by membrane and insulation manufacturer.

2.3 FLASHINGS

- A. Membrane Flashings: Composite of the same resin material as field membrane with 165 g/m² fleece reinforcement.
- B. Copper Flashings: Refer to requirements in Section 07620 "Sheet Metal Flashing and Trim"

2.4 ACCESSORIES

- A. Water based cleaner for membrane: Simple Green HD.
- B. Solvent-Based Cleaner for Tools and Membrane Tie-Ins: Methyl Ethyl Ketone (MEK) or acetone.
- C. Citrus-Based Cleaner for Membrane: Kempertec Klean.
- D. Water-Based Cleaner for Membrane: Simple Green HD.
- E. Aggregate Specification and Size: All surfacing aggregates shall be washed, kiln-dried, dust-free, suitable for broadcast, round grain or angular, and sized as follows:
 - 1. Kemperol Mixing Sand (00) #35 (0.3 - 0.6 mm) for patching voids less than 1 inch.
 - 2. Kemperol Surfacing Sand (0) #18 (0.5 - 1.2 mm) for patching voids from 1 to 2 inches or surfacing.
 - 3. Kemperol Surfacing Sand (1) #14 (0.8 to 1.5 mm) for coarse surfacing at walkway areas..
 - 4. Mixing Proportions shall be a ratio of resin to sand at 1:2 by volume for leveling, 1:4 by volume for patching, or as approved by membrane manufacturer.
- F. Backer Rod: Expanded, closed-cell polyethylene foam designed for use with cold-applied joint sealant.
- G. Joint Sealant:
 - 1. Cover Board/Insulation: Kempertec Joint Sealant, single component, non-sag elastomeric polyurethane sealant for use in sealing joints, cracks, gaps, transitions in cover boards, insulation, plywood and for use above the waterproofing at doors, windows, masonry, siding, concrete and more. Can be applied on damp surfaces and cold weather. Bonds aggressively to wood, Modified Bitumen, asphalt, EPDM, PVC and PIB, vinyl, fiberglass, glass, painted, galvanized and anodized metals and Kynar finish.
- H. Wood Nailers: New wood nailers shall be pressure treated for rot resistance using Wolmanized or Osmose K-33, #2 or better lumber. Asphaltic or creosote treated lumber is not acceptable.
- I. Expansion Joints in Excess of 2 Inches: Provide flat, vulcanized waterproofing joint

integral with the waterproofing membrane to accommodate movements over 2 inches (50 mm) and capable of 500 percent elongation at minus 40 degrees F (minus 40 degrees C) across its length and at all vulcanized points.

1. Product: Joint material SITURA INC. RedLINE.
2. Connections: All connections factory fabricated by vulcanization.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared and conditions are suitable to proceed with the Work of this specification.
 1. Substrates shall be inspected and repaired as needed to provide a proper surface to receive waterproofing system.
 2. Verify substrate surface slopes to drain for horizontal waterproofing applications.
 3. Identify incompatible substrates, if any.
- B. Verify substrate openings, curbs, and protrusions through deck/substrate, wood cant strips and reglets are in place and solidly set.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. General: Surfaces to be prepared as a substrate for the new roofing/waterproofing system as follows:
 1. Determine the condition of the existing structural slab/substrate. All defects in the substrate shall be corrected before new waterproofing work commences. Areas of deteriorated substrate, porous or other affected materials must be removed and replaced with new to match existing.
 2. Prepare flashing substrates as required for application of new waterproofing membrane flashings.
 3. Inspect substrates, and correct defects before application of new waterproofing. Fill all surface voids greater than 1/8 inch wide with an acceptable fill material.
 4. Remove all ponded water, snow, frost and/or ice from the work substrate prior to installing new waterproofing materials.
 5. Final substrate for waterproofing shall be clean, dry, free of loose, spalled or weak material including coatings, mineral aggregate, and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, waterproofing agents, curing compounds, and free of projections which could damage membrane materials.
- B. Flashing Surfaces:
 1. Remove all contaminants as required by membrane manufacturer. Surface preparation shall be performed by means approved by Architect and Roofing/waterproofing

Manufacturer.

3.3 WOOD NAILER INSTALLATION

- A. Install pressure-treated wood nailers as indicated, and as required by the Membrane manufacturer. Wood nailers shall be installed at all roof edges and on either side of expansion joints, as well as beneath any equipment flanges.
- B. Wood nailers shall be firmly fastened to the deck. Mechanically fasten wood nailers as required to resist a force of 200 lbs per lineal foot, but with no less than 5 fasteners per 8 foot or 6 fasteners per 10 foot length of nailer. Refer to current FM Loss Prevention Bulletin 1-49 for additional attachment recommendations.

3.4 CAP SHEET TEMPORARY ROOF/VAPOR RETARDER INSTALLATION

- A. Install mineral-surfaced cap sheet in accordance with cap sheet manufacturer's current published specifications and recommendations for use with adhered roofing/waterproofing.
 - 1. Mineral Surfaced Cap Sheet Torch-Applied Attachment: Follow cap sheet manufacturer's recommendations for the appropriate application procedure. Roll each cap sheet into molten bitumen. Limit bitumen bleed-out at laps to 1/4 inch or less.
 - 2. Mineral Surfaced Cap Sheet Solid-Adhered Attachment: Follow cap sheet manufacturer's recommendations for the appropriate asphalt application rate and application procedure. Roll each cap sheet into a full mopping of hot steep asphalt (Type III) at the recommended EVT range. Broom in the cap sheet to spread the roofing asphalt for maximum contact. Limit bitumen bleed-out at laps to 1/4 inch or less.
 - 3. Mineral Surfaced Cap Sheet Self-Adhered Attachment: Follow cap sheet manufacturer's recommendations for the appropriate application procedure.
- B. Neatly fit cap sheet to all penetrations, projections, curbs, and walls. Extend over all nailers. Cap sheet shall be overlapped a minimum of 3 inches for side laps and 6 inches for end laps. Seal at penetrations, projections, curbs and walls with polyurethane joint sealant. Do not use asphaltic flashing cement.

3.5 INSULATION AND COVER BOARD INSTALLATION

- 1. Install only as much insulation and cover board as can be primed, sealed, and protected before the end of the day's work or before the onset of inclement weather.
- 2. Fit insulation and cover board at all penetrations, projections, and nailers. Insulation shall be loosely butted, with joints not greater than 1/4 inch. All joints greater than 1/2 inch shall be filled with acceptable insulation. Cover board shall be loosely butted, with joints not greater than 1/4 inch. All joints from up to 1/2 inch shall be filled with polyurethane joint sealant. Strip all insulation and cover board joints with polyester fleece reinforcement imbedded into the wet primer or resin. Under no circumstances shall the membrane be left unsupported over a space greater than 1/4 inch.
- 3. Strip all insulation and cover board joints with 4 inch wide strip of flashing membrane. Under no circumstances shall the membrane be left unsupported over

- a space greater than 1/4 inch.
4. Stagger multiple layers of insulation and cover board a minimum of 6 inches in each direction.
 5. Steel Deck Substrates: Place boards perpendicular to steel deck flutes with edges over flute surface for bearing support. Edges shall be checked so that no edges are left substantially unsupported along the flutes.
 6. Drain Sumps: Insulation shall be feathered or tapered to provide a sump area a minimum of 36 inches by 36 inches where possible at all drains. Taper insulation around roof drains so as to provide proper slope for drainage. In areas where feathered or tapered insulation leaves insulation core exposed, cover with an appropriate cover board or base sheet/cap sheet assembly to provide a sound and smooth substrate surface.
 7. Tapered Insulation: Place tapered thickness insulation to the required slope pattern in accordance with insulation manufacturer's instructions.

- B. Foamable Adhesive Attachment: Follow insulation, cover board and adhesive manufacturers' recommendations for the appropriate adhesive application rate and application procedure. Place the boards onto the roofing adhesive beads. Walk on the boards to spread the roofing adhesive for maximum contact. Periodically walk on the boards until firmly attached. Reference FM approvals for adhesive application patterns that satisfy FM wind uplift requirements. Additional adhesive is required in the corner and perimeter regions of the roof. Secure insulation/cover board in accordance with approval requirements.

3.6 PRIMER APPLICATION

- A. General:
1. Mix and apply two-component primer in strict accordance with written instructions of Membrane Manufacturer.
 2. Substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth wipe or a combination of methods.
 3. Do not apply primer on any substrate containing asphalt, coal-tar pitch, creosote or penta-based materials unless approved in writing by Membrane Manufacturer. Some substrates may require additional preparation before applying primer.
- B. Mixing of Kempertec D Primer:
1. Premix primer Component A thoroughly with a spiral agitator. Pour entire unit of primer Component B into entire unit of primer Component A and mix the components for approximately 2 minutes with a clean spiral agitator on slow speed without creating any bubbles or streaks. DO NOT AERATE. Primer solution should be a uniform color, with no light or dark streaks present.
 2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
- C. Mixing of Kempertec EP5 Primer: Also to be used when ambient temperature is 50 degrees F (10 degrees C) and below.
1. Premix primer Component A thoroughly with a spiral agitator or stir stick. Pour entire unit of primer Component B into entire unit of primer Component A and mix the components for approximately 2 minutes with a clean spiral agitator on slow speed without creating any bubbles or streaks. DO NOT AERATE. Primer

- solution should be a uniform color, with no light or dark streaks present.
2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
 3. Mix only full units of primer. Primer pot life is approximately 20 minutes.
- D. Mixing of Kempertec R Primer:
1. Premix primer Component A within clear pouch to obtain consistent appearance. Remove separation cord. Knead primer Component B into Component A and mix the components for approximately 1 minute. The Primer solution should be a uniform color, with no light or dark streaks present.
 2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
 3. Mix only full units of primer. Primer pot life is approximately 5-10 minutes.
- E. Application:
1. After mixing, apply the primer with a roller or brush evenly onto the surface in a cross directional method, or utilizing the pour and spread method to fully cover the substrate.
 2. Porous and higher moisture content concrete substrates may require an adjustment to the primer application rate or multiple coats to achieve proper pore saturation.
 3. For EP and EP5 Primer applications, broadcast Kemperol Surfacing sand (0, #18) at the rate of 50 lbs. / 100 ft² into the wet primer to increase surface area and enhance adhesion. Remove excess sand after primer has fully cured prior to membrane application.
 4. Curing time is approximately 12-16 hours for D and EP primers and approximately 3-4 hours for R and EP5 primers. Kemperol membrane may be applied when the primer is completely dry and without tack. Do not apply Kemperol membrane to tacky or wet primer.
 5. Exposure of primer in excess of 8 days or premature exposure to moisture may require abrasion of contaminated surface and application of new primer coat.

3.7 MEMBRANE APPLICATION

- A. General:
1. Apply the roofing/waterproofing membrane immediately following full curing of the primer in order to obtain the best bond between primer and membrane.
 2. Mix and apply cold fluid-applied reinforced polyurethane roofing/waterproofing membrane in strict accordance with written instructions of Membrane Manufacturer.
 3. Primed substrate surface shall be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
 4. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before 48 hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
 5. Follow the Membrane Manufacturer's recommendation for hot and cold weather

application. Monitor surface and ambient temperatures, including the effects of wind chill.

- B. Mixing of Kemperol REFLECT 2K FR Resin:
1. Premix resin Component A with a spiral agitator until the liquid is a uniform color. If the ambient temperature is below 50 degrees F (10 degrees C), then a weather related additive should be combined and mixed into the Component A.
 2. Accelerator should be added to resin Component A when ambient temperature is 50 degrees F (10 degrees C) and below. Accelerator should be mixed with the spiral agitator for 2 minutes or until both liquids are thoroughly blended.
 3. Pour entire resin Component B into entire resin Component A and thoroughly mix the components with a clean spiral agitator. The Resin solution should be a uniform color, with no light or dark streaks present. Mix only full units, do not break down units.
 4. Resin pot life is approximately 30 minutes.
- C. Application of Resin/Fleece:
1. After the Resin is mixed, using a Kemperol roller nap or brush, apply 2/3 of the resin liberally and evenly onto the surface. Covering one working area at a time, between 10 - 15 sq.ft.
 2. Roll the Kemperol Fleece directly into the resin, making sure the SMOOTH SIDE IS FACING UP (natural unrolling procedure), avoiding folds and wrinkles. The fleece will begin to rapidly saturate with the liquid resin mix. Use the roller or brush to work the resin into the fleece, saturating from the bottom up, and eliminating air bubbles, wrinkles, etc. It is important to correct these faults before the resin cures.
 3. Apply the remaining 1/3 of the resin to the top of fleece to complete the saturation. Rolling the final coat of resin onto the fleece should result in a glossy appearance. The fleece can only hold so much resin and all excess should be rolled forward to the unsaturated portion of the fleece. The correct amount of resin will completely saturate the fleece. Work wet membrane to avoid any blisters, openings, or lifting at corners, junctions, and transitions. Always assure full resin saturation of fleece.
 4. Prevent contact between mixed/unmixed resin and new/existing membrane. If any unmixed resin contacts membrane surface remove immediately and clean thoroughly with a cloth rag.
 5. At all fleece seams, allow a 2 inch (5 cm) overlap for all side joints and a 4 inch (10 cm) overlap for all end joints.
 6. At membrane tie-offs, clean in-place membrane with MEK when resin has cured. Allow solvents to fully evaporate before application of new resin. **DO NOT APPLY PRIMER TO EXISTING KEMPEROL MEMBRANE.**

3.8 FLASHING APPLICATION

- A. General:
1. Install flashing system in accordance with the requirements/recommendations of the Membrane manufacturer and as indicated on the manufacturer's standard drawings. Provide system with base flashing, edge flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system.
 2. Wherever possible, install the flashings before installing the field membrane to

- minimize foot traffic over newly installed field membrane.
3. All membrane flashings shall be installed concurrently with the roofing/waterproofing membrane as the job progresses. Temporary flashings are not allowed without prior written approval from the Membrane manufacturer. Should any water penetrate the new roofing/waterproofing membrane because of incomplete flashings, the affected area shall be removed and replaced at the Contractor's expense.
 4. Provide a minimum vertical height of 8 inches for all flashing terminations. Flashing height shall be at least as high as the potential water level that could be reached as a result of a deluging rain and/or poor slope. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.
 5. All flashings shall be terminated as required by the Membrane Manufacturer.
 6. Alkalinity surface protection consisting of one application of EP primer and one application of approved broadcast mineral aggregate surfacing shall be applied wherever stone, concrete, or masonry elements will be placed directly over the flashing.
- B. Metal Flashing - General:
1. Metal flashings shall be fabricated in accordance with the current recommendations of SMACNA and in accordance with the Manufacturer's standard drawings.
 2. Metal flashing flanges to which membrane is to be bonded shall be a minimum of 4 inches in width, and secured to the substrate or wood nailers 6 inches on center staggered with fasteners appropriate to the substrate type. Flanges shall be provided with a roughened surface that has been cleaned of all oil and other residue.
 3. Metal edges that will be overlaid with membrane shall be provided with a 1/4 inch minimum hemmed edge.
 4. Apply primer, resin and fleece to metal flange, extending membrane to outside face of metal edging, and to vertical face of metal base/curb flashing.
- C. Membrane Flashing - General:
1. Membrane flashings shall be fabricated with primer appropriate for the substrate surface, resin of the same base chemical type as the field membrane, and fleece of the same weight as the field membrane unless specified otherwise.
 2. Primer, resin, and fleece mixing and application methods as specified for field membranes are also suitable for membrane flashing.
 3. Fleece shall overlap 2 inches (5 cm) minimum for all joints. Fleece shall be cut neatly to fit all flashing conditions without a buildup of multiple fleece layers. Work wet membrane with a brush or roller to eliminate blisters, openings, or lifting at corners, junctions, and transitions.
- D. Pipes, Conduits, and Unusually Shaped Penetrations:
1. Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. Provide a minimum of a 2 inch (5 cm) overlap between vertical and horizontal flashing components.
- E. Drains and Scuppers:
1. Acceptable drain and scupper materials are galvanized, galvalum, cast iron, cast aluminum, copper, hard PVC, and ABS.
 2. Flashing material shall extend 4 inches minimum onto drain or scupper flange

- and into drain/ scupper body.
3. Install clamping ring if provided as part of the drain or scupper design. Install a strainer basket to prevent debris from clogging the drainage line.
- F. Flexible Penetrations:
1. Provide a weathertight gooseneck of round cross-section for each penetration or group of penetrations. Set in water cut-off mastic and secure to the structural substrate.
 2. Flashing is typically constructed as a two part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a 2 inch (5 cm) overlap between vertical and horizontal flashing components.
- G. Walls, Curbs and Base Flashings:
1. Wall, curb and base flashings shall be installed to solid substrate surfaces only. Adhering to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding, and other similar materials is not acceptable.
 2. Reinforce all transition locations and other potential wear areas with a 4 inch wide membrane strip evenly positioned over the transition prior to installing the exposed flashing layer.
 3. Reinforce all inside and outside corners with a 4 inch diameter conical piece of membrane prior to installing the exposed flashing layer.
 4. All pins, dowels and other fixation elements shall be flashed separately with a vertical flashing component prior to installing the exposed flashing layer.
 5. Extend flashing a minimum of 4 inches onto the field substrate surface.
- H. Drip Edges and metal flashings:
1. Metal drip edges and metal flashings shall be installed to solid substrate surfaces or wood nailers only. Securement to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding or coping, and other similar materials is not acceptable.
 2. Flash all drip edges and flashings by extending the field membrane all the way to the edge of the exposed face prior to installing the metal edging. Strip in the metal flange with a separate 8 inch wide strip of membrane adhered to both the securement flange and to the field membrane.
 3. For conditions where water infiltration behind the exposed drip edge or gravel stop face is possible, install a separate membrane layer positioned behind the face area and extending a minimum of 4 inches past the securement flange onto the field substrate prior to installing the drip edge or gravel stop.
- I. Field Fabricated Control or Expansion Joint Flashing:
1. Control or expansion joints in excess of 2 inches in width and all expansion joints subject to vehicular traffic require the use of a separate engineered joint system.
 2. Grind or otherwise bevel the inside edges of the joint opening to provide a smooth transition edge for the fleece.
 3. Flashing typically consists of a fully saturated membrane bottom layer looped into the joint as a cradle, a compressible foam or rubber insert at 25 percent compression fitted into the joint, and a membrane top layer applied over the joint. Extend both fleece layers 4 inches minimum onto the field substrate on both sides of the joint.
 4. Apply the field membrane over the entire joint area.
- J. Electrical Conduit, Gas Lines and Lightning Protection

1. Supports for electrical conduit and gas lines greater than 1 inch in diameter require the use of a separate engineered support system.
 2. Supports for electrical conduit and gas lines 1 inch or less in diameter, and bases for lightning protection rods and cable, can be adhered directly to the membrane surface with a single-component, polyurethane construction adhesive.
- K. Alkalinity Protection:
1. Where placement of concrete, mortar or adhesive setting beds are required over sections of the waterproofing membrane or flashing, apply manufacturer's epoxy primer/coating at the manufacturer's recommended coverage rate, with broadcast to excess of kiln-dried silica sand into wet primer/coating.
 2. Protection shall extend a minimum of 1 foot (0.3m) past the concrete form on all sides.
 3. Provide continuous cleaning with water and brush to eliminate settlement of concrete residues on in-place waterproofing membrane adjacent to area of concrete placement.

3.9 TEMPORARY CLOSURES AND WATERSTOPS

- A. Ensure that moisture does not damage any completed section of the new waterproofing system. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition. All temporary closures shall be made as recommended or required by the membrane manufacturer.

3.10 PROTECTION

- A. Upon completion of waterproofing and flashings and associated work, institute appropriate procedures for surveillance and protection of roofing during remainder of construction period. Protect all areas where membrane has been installed
- B. Membrane must be clean and dry, and free of all contaminants that may interfere with the adhesion of the surfacing and coating to the membrane surface.
- C. Membrane exposed less than 48 hours prior to application of surfacing and coating materials does not require special surface preparation. It is highly recommended that all surfacing and coating materials be applied to the membrane surface within 48 hours.
- D. Membrane exposed longer than 48 hours will require sanding/scuffing of the surface to remove the hard gloss finish, followed by an MEK or acetone solvent wipe.

3.11 FIELD QUALITY CONTROL

- A. Prepare a written report of results of successful and unsuccessful inspection testing and submit to Architect within 7 days following each test. Report shall include date of test, project name, list of products being applied and tested, name of applicator, name of Contractor, and conditions causing failure of roofing/waterproofing in event of an unsuccessful test.
- B. Complete all post installation procedures in accordance with the manufacturer's guidelines for warranty issuance of the specified warrantee.

- C. Notification of Completion: Notify the membrane manufacturer of job completion and schedule a final inspection date.
- D. Final Inspection: At the completion of the Work meet with the membrane manufacturer's technical field representative to evaluate the completed installation of the field and flashing membrane. Complete all previously noted punch list items prior to the scheduled meeting.
- E. Correction of Work: Work that does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Membrane Manufacturer's inspections shall be corrected and/or replaced.

3.12 CLOSEOUT

- A. Correction of Work: Work that does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Membrane Manufacturer's inspections shall be corrected and/or replaced.

3.13 PROTECTION

- A. Protect building components with tarps or other suitable materials, from soil, stains, or spills at all hoisting points and areas of application. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- B. Protect finished waterproofing membrane from damage by other trades by the use of a cushioning layer such as 1 inch thick expanded polystyrene insulation and an impact layer such as 1/2 inch thick exterior-grade plywood.
- C. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, etc. or direct steam venting to come into direct contact with the membrane unless approved by manufacturer's chemical resistance chart.
- D. Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original condition.
- E. Provide barricades, retaining ropes, safety elements and any appropriate signage required.
- F. Protect finished roofing/waterproofing membrane from damage by other trades by the use of a cushioning layer such as 1 inch thick expanded polystyrene insulation and an impact layer such as 1/2 inch thick exterior-grade plywood.
- G. Eliminate construction traffic on newly tested membrane systems. Do not store construction materials on unprotected membrane surfaces.
- H. Membrane areas that are observed to be trafficked or used as a storage/working platform shall be retested and immediately repaired and covered with insulation and drainage composite.

3.14 CLEANING

- A. Clean-Up: Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to preconstruction condition.
- B. Waterproofing materials, components and accessories shall be removed from Site and taken to a legal dumping area authorized to receive such materials.
- C. Disposal of Primer and Resin: Cured resin may be disposed of in standard landfills. Uncured resin is considered a hazardous material and must be handled as such, in accordance with local, state and federal regulation.

END OF SECTION 07121

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Work in this Section shall include, but is not necessarily limited to, the following:
 - 1. M4 Remove and reinstall existing cast stone coping units at existing parapets and install new saw-tooth copper flashing prior to reinstallation.
 - 2. T3 Provide and install (2) new through-wall copper sleeves at existing scuppers. Flash scuppers fully with Kemper cold-fluid applied flashing.
 - 3. T4 Provide and install new two-piece copper counter-flashing at parapet walls with newly cut reglet at second masonry wythe to be secured at joint above historic through-wall copper flashing with lead wedges.
 - 4. MT4 Provide and install pipe curb assemblies and caps for future use.
 - 5. Provide fabric coated copper flashing set in sealant at brick rebuilding locations.
- B. Related work specified elsewhere:
 - 1. Section 04520 – Stabilization and Restoration of Existing Masonry
 - 2. Section 07900 – Joint Sealers

1.3 QUALITY ASSURANCE

- A. Fabricator's Qualifications: Engage a company specializing in ornamental copper sheet metal work for the fabrication of decorative elements and trim. Fabricator must have a minimum of three (3) years' experience in projects of similar size and type.
- A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing, trim, and ornamental work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Mockups: Prior to fabricating or installing sheet metal flashing and trim, construct mockups indicated to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Construct mockups for the following type of sheet metal flashing and trim:
 - a. (1) each of cornice replacement elements: panel, modillion, and bracket
 - b. Lintel flashing
5. Obtain Architect's approval of mockups before start of final unit of Work.
6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. When directed, demolish and remove mockups from Project site.
 - b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.4 SUBMITTALS

- A. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified sheet and flashing material and fabricated product.
- B. Samples of sheet metal flashing, trim, and accessory items, in the specified finish. Where finish involves normal color and texture variations, include Sample sets composed of 2 or more units showing the full range of variations expected.
 1. 8-inch square Samples of specified sheet materials to be exposed as finished surfaces.
 2. 12-inch long Samples of factory-fabricated products exposed as finished Work. Provide complete with specified factory finish.
 3. Reglets and Flashing: 8 inches long.
- D. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- B. Comply with applicable recommendations and details of the "Copper in Architecture" handbook published by the Copper Development Association (CDA).

1.6 DELIVERY, STORAGE AND HANDLING

- A. Protect finish metal faces during all packing, shipping, handling, and unloading.

- B. Acceptance at Site: Examine each component and accessory as delivered and confirm that material and finish is undamaged. Do not accept or install damaged materials.
- C. Storage and Protection:
 - 1. Stack pre-formed material to prevent twisting, bending, and abrasions.
 - 2. Prevent contact with materials which may cause discoloration or staining.

1.7 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

1.8 WARRANTY

- A. Warrant installed flashing, trim and anchorage components to be free from defects in material and workmanship for period of two (2) years.
- B. Include coverage against leakage and damages to finishes.

PART 2 - PRODUCTS

2.1 METAL

- A. Copper Sheet: ASTM B370; temper H, cold rolled, unless temper 060 is required for forming; at least 16oz./sq. ft., unless otherwise indicated.
- B. 5 Ounce York Copper Fabric Flashing as manufactured by York Manufacturing, Inc. of Sanford ME. (800) 551-2828.
- C. 5 Ounce Copper Fabric Flashing as manufactured by Advanced Building Products, Inc. of Springvale ME. (800) 252-2306

2.2 REGLETS

- A. General: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated. All reglets to be fabricated from Copper Sheet, 16 oz/sq.ft.
- B. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
- C. Counterflashing: Provide counterflashing fabricated from the same copper sheeting, and compatible with reglet system installed. Provide wind-restraint clips to be installed before counterflashing to prevent wind uplift of the counterflashing's lower edge.
- D. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Fry Reglet Corporation.
2. Hickman: W.P. Hickman Co.
3. Keystone Flashing Company.

2.3 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Burning Rod for Lead: Same composition as lead sheet.
- B. Solder: ASTM B 32, Grade Sn50, used with rosin flux.
- C. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- D. Elastomeric Sealant: One-part, copper compatible type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07920 "Joint Sealants."
- E. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- F. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- G. Sealant: For setting of new fabric coated metal flashing provide one of the following:
 1. UniverSeal US-100 Liquid Tape as manufactured by UniverSeal.
 2. Osi Pro Series H2U Acrylic Urethane Sealant as manufactured by Henkel Corporation.
- H. Weep holes in brick masonry: Provide one of the following:
 1. Injection-molded "Brick Vents" by Williams Products, 1750 Maplelawn Boulevard, Troy, Michigan 48084. Tel: (248) 643-6400 or (800) 521-9594.
 2. #343 Weep Hole by Hohmann & Barnard, Inc. H&B New York, 30 Rasons Court, Hauppauge, NY 11788. (631) 234-0600 or (800) 645-0616.

2.4 FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal. Fabricate to allow for adjustments in field for proper anchoring and joining.

- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- E. Expansion Provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- F. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with permanent separation as recommended by manufacturer.
- H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.
- I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.
 - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.5 PIPE CURB ASSEMBLIES

- A. Pipe curb assembly shall consist of heavy ga. galvanized steel roof curb, unitized construction, with integral base plate, 1 ½" insulation and 2 x 2 treated wood nailer. Unit shall be furnished with acrylic clad thermoplastic cover, fastening screws, graduated step boots with stainless steel clamps.
- B. Provide cap style pcc-3.
- C. Manufacturer: Subject to compliance with requirements, provide products by the following or equal:
 - 1. The Pate Company
245 Eisenhower Lane South
Lombard, Illinois 60148
630.705.1920 sales@patecurbs.com

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed sheet metal ornamental and trim Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- D. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except where pre-tinned surface would show in finished Work.
 - 1. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
 - 1. Use joint adhesive for nonmoving joints specified not to be soldered.
- F. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

- G. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with permanent separation as recommended by manufacturer.

3.3 FABRIC WALL FLASHING INSTALLATION:

- A. Follow the manufacturer's installation instructions in order to provide a water tight condition.
- B. Install flashing in manufacturer approved sealant per manufacturer's instructions for the type of substrate encountered. Strictly adhere to flashing manufacturer's recommended coverage rates for sealant installation. Reglet top edge of fabric flashing and secure with lead wedges. Set the toe of the flashing at lintels in approved sealant.
- C. At all end terminations, turn up the flashing and create an end dam condition. Set returns in compatible sealant. Provide additional target piece of flashing to provide water tight condition at all ends. Do not slice corners at end dams.
- D. Lap wall flashing under existing wall flashings at the extent of all work.
- E. Where wall ties are installed, install new target piece of fabric coated metal flashing over each penetration.
- F. Install new masonry, providing weep holes in the vertical joints directly above flashing level, at min. 24" o.c., or a minimum of 3 weeps per length of masonry.

3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 07620

SECTION 07720 – ROOF HATCH

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. Work in this Section shall include, but is not necessarily limited to, the following:
 - 1. T5 Provide new roof hatch with new curb and integral flashing. Provide and install new painted metal access ladder.
- B. Related work specified elsewhere:
 - 1. Section 07560 – Cold-fluid Applied Waterproofing Membrane
 - 2. Section 07620 - Sheet Metal Flashing and Trim

1.3 QUALITY ASSURANCE

- B. Manufacturer: A minimum of 5 years experience manufacturing similar products.
- C. Installer: A minimum of 2 years experience installing similar products.
- D. Manufacturer's Quality System: Registered to ISO 9001 Quality Standards including in-house engineering for product design activities.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
- B. Shop Drawings: Submit shop drawings including profiles, accessories, location, adjacent construction interface, and dimensions.
- C. Warranty: Submit executed copy of manufacturer's standard warranty.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.6 WARRANTY

- A. Manufacturer's Warranty: Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of

purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2-PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: Type S Roof Hatch by The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-800-366-6530, Fax: 1-203-535-1582, Web: www.BILCO.com.
- B. Or approved alternate.

2.2 ROOF HATCH

- A. Furnish and install where indicated on plans metal roof hatch Type S, size to match existing. Length denotes hinge side. The roof hatch shall be single leaf. The roof hatch shall be pre-assembled from the manufacturer.
- B. Performance characteristics:
 - 1. Cover shall be reinforced to support a minimum live load of 40 psf (195kg/m²) with a maximum deflection of 1/150th of the span and a 140 psf (684 kg/m²) wind uplift for galvanized steel (Type S-20) roof hatches.
 - 2. Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
 - 3. Operation of the cover shall not be affected by temperature.
 - 4. Entire hatch shall be weather tight with fully welded corner joints on cover and curb.
- C. Cover: Shall be 14 gauge (1.9mm) paint bond G-90 galvanized steel with a 3" (76mm) beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.
- D. Cover insulation: Shall be fiberglass of 1" (25mm) thickness, fully covered and protected by a metal liner 22 gauge (.8mm) paint bond G-90 galvanized steel
- E. Curb: Shall be 12" (305mm) in height and of 14 gauge (1.9mm) paint bond G-90 galvanized steel. The curb shall be formed with a 3-1/2" (89mm) flange with 7/16" (11.1mm) holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners, that features the Bil-Clip[®] flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single ply roofing membrane securely in place.
- F. Curb insulation: Shall be rigid, high-density fiberboard of 1" (25mm) thickness on outside of curb.

- G. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe through bolted to the curb assembly.
- H. Hardware
 - 1. Heavy pintle hinges shall be provided
 - 2. Cover shall be equipped with a spring latch with interior and exterior turn handles
 - 3. Roof hatch shall be equipped with interior and exterior padlock hasps.
 - 4. The latch strike shall be a stamped component bolted to the curb assembly.
 - 5. Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 1" (25mm) diameter red vinyl grip handle to permit easy release for closing.
 - 6. All hardware shall be Type 316 stainless steel hardware].
 - 7. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
- I. Finishes: Factory finish shall be alkyd based red oxide primed steel.

PART 3 - EXECUTION

3.0 EXAMINATION

- A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install products in strict accordance with manufacturer's instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.
 - 1. Test units for proper function and adjust until proper operation is achieved.
 - 2. Repair finishes damaged during installation.
 - 3. Restore finishes so no evidence remains of corrective work.

3.2 ADJUSTING AND CLEANING

- A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION 07720

SECTION 07900 - JOINT SEALERS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.
- B. Comply with the general conditions, supplementary conditions, and provisions of Division 1.

1.2 DESCRIPTION OF WORK

- A. Work in this Section shall include, but is not necessarily limited to, the following:
 - a. Interfacing between new roofing system and new resin based flashing.
 - b. Installation of new finish surfacing and sealer.
- B. Related work specified elsewhere:
 - 1. Section 07560 – Cold-fluid Applied Waterproofing Membrane.

1.3 QUALITY ASSURANCE

- A. Qualification of Installers: Use only personnel who are thoroughly familiar, skilled and specially trained in the techniques of sealant work, and who are completely familiar with the published recommendations of the sealant manufacturer.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for:
 - 1. Sealant materials, indicating that material meets standards specified herein.
 - 2. Backing rods.
- B. Shop Drawings: Submit shop drawings showing all joint conditions, indicating relation of adjacent materials, all sealant materials (sealant, bond breakers, backing, primers, etc.), and method of installation.
- C. Samples: Submit the following:
 - 1. Color samples of sealants.
 - 2. Sealant bond breaker and joint backing.
- D. Submit manufacturer's certification as required by Article 1.6 herein.

- E. Submit results of testing required in Article 1.8 herein.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Protection: Use all means necessary to protect the materials of this Section, before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary.
- C. Storage
 - 1. Store sealant materials and equipment under conditions recommended by their manufacturer.
 - 2. Do not use materials stored for a period of time exceeding the maximum recommended shelf life of the material.

1.6 MANUFACTURER'S RESPONSIBILITY AND CERTIFICATION

- A. Contractor shall require sealant manufacturer to review the Project joint conditions and details for this Section of the work. Contractor shall submit to the Architect written certification from the sealant manufacturer that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vaportight seals (as applicable), and that materials supplied meet specified performance requirements.

1.7 PROJECT CONDITIONS

- A. Temperature: Install all work of this Section when air temperature is above 40 degrees F. and below 80 degrees F., unless manufacturer submits written instructions permitting sealant use outside of this temperature range.
- B. Moisture: Do not apply work of this Section on surfaces which are wet, damp, or have frost.

1.8 TESTING

- A. Perform adhesion tests in accordance with ASTM C794 noting any modifications to this test procedure where compatibility is an issue.
- B. Perform testing on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work shall start until results of these tests have been submitted to the Architect and they have given his written approval to proceed with the work.

1.9 WARRANTY

- A. Provide a written, notarized guarantee from the manufacturer and the applicator stating that the applied sealants shall remain watertight for a period of 5 years.

- B. Guarantee shall be in a form acceptable to the Owner and executed by an authorized individual.
- C. Guarantee shall further state that installed sealant is guaranteed against:
 - 1. Adhesive or cohesive failure of sealant joints.
 - 2. Cracking greater than 3 mils in depth developing on surface of material.
 - 3. Staining of surfaces adjacent to joints by sealants or primer by migration through building materials in contact with them.
 - 4. Chalking, or visible color change on surface of cured sealant.
 - 5. Increase or decrease of "Shore A" durometer hardness (5 second reading) of sealant of more than 30 percent of 7 day value of "Shore A" durometer hardness of sealant.
- D. Include in guarantee provision, agreement to repair and/or replace, at Contractor's expense, sealant defects which develop during guarantee period, because of faulty labor and/or materials.

PART 2 - PRODUCTS

2.1 SEALANT MATERIALS

- A. Sealant, General: Tremco Dymeric 240 multi-component Urethane sealant.
- B. Sealant, Copper: Tremco Dymonic for use at copper.
- C. Colors: As selected by the Architect from manufacturer's standards.

2.2 MISCELLANEOUS MATERIALS

- A. Back-Up Materials: Provide back-up materials and preformed joint fillers, non-staining, non-absorbent, compatible with sealant and primer, and of a resilient nature, equal to "Sof-Rod" made by Nomaco Inc. or approved equal, 25 percent wider than joint width. Materials impregnated with oil, bitumen or similar materials shall not be used. Provide back-up materials only as recommended by sealant manufacturer in writing.
- B. Provide bond breakers, where required, of polyethylene tape as recommended by manufacturer of sealant.
- C. Provide primers recommended by the sealant manufacturer for each material to receive sealant. Note that each exterior joint must be primed prior to sealing.
- D. Provide solvent, cleaning agents and other accessory materials as recommended by the sealant manufacturer.
- E. Materials shall be delivered to the job in sealed containers with manufacturer's original labels attached. Materials shall be used per manufacturer's printed instruction.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where joint sealers are to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

- A. Apply sealant under pressure with a hand or power actuated gun or other appropriate means. Gun shall have nozzle of proper size and provide sufficient pressure to completely fill joints as detailed. Neatly point or tool joint to provide the contour as indicated on the drawings.
- B. Preparation and Application
 1. Thoroughly clean all joints, removing all foreign matter such as dust, oil, grease, water, surface dirt and frost. Sealant must be applied to the base surface. Previously applied film must be entirely removed.
 - a. At existing joints in need of re-caulking, carefully remove all old sealant and joint fillers.
 2. Masonry surfaces to receive sealant shall be cleaned where necessary by grinding, water blast cleaning, mechanical abrading, or combination of these methods as required to provide a clean, sound base surface for sealant adhesion.
 - a. Do not use any acid or other material which might stain surfaces.
 - b. Remove laitance by grinding or mechanical abrading.
 - c. Remove loose particles present or resulting from grinding, abrading, or blast cleaning by blowing out joints with compressed air, oil and water free, or vacuuming joints prior to application of primer or sealant.
 3. Clean non-porous surfaces such as metal chemically: Remove protective coatings on metallic surfaces by solvent that leaves no residue and is compatible with sealant. Use solvent with clean, lint free paper towels, and wipe dry with clean, dry lint free paper towels. Do not allow solvent to air dry without wiping. Clean joint areas protected with masking tape or strippable films as above after removal of tape film.
 4. Joint Size and Sealant Size: Joints to receive sealant shall be at least 1/4" wide. In joint 1/4" to 3/8" wide, sealant shall be 1/4" deep. In joints wider than 3/8" and up to 1" wide, sealant depth shall be one half the joint width. For joints wider than 1", sealant depth shall be as recommended by the sealant manufacturer. Depth of joint is defined as distance from outside face of joint to closest point of the filler.
 5. Primer: Thoroughly clean joints and apply primer to all surfaces that will receive sealant. Apply primer on clean, dry surfaces, and prior to installation of joint backing. Completely wet both inner faces of the joint with primer. Mask adjacent surfaces of joint with non-staining masking tape prior to priming.
 6. Joint Backing: In joints where depth of joint exceeds required depth of sealant, install joint backing (after primer is dry) in joints to provide backing and proper

joint shape for sealant. Proper shape for sealant is a very slight "hourglass" shape, with back and front face having slight concave curvature. Use special blunt T-shaped tool or roller to install joint backing to the proper and uniform depth required for the sealant. Joint backing shall be installed with approximately 25 percent compressions. Do not stretch, twist, braid, puncture, or tear joint backing. Butt joint backing at intersections.

7. Bond Breaker: Install bond breaker smoothly over joint backing so that sealant adheres only to the sides of the joint and not backing.
8. Sealant Application: Apply sealant in accordance with the manufacturer's application manual and manufacturer's instructions, using hand guns or pressure equipment, on clean, dry, properly prepared substrates, completely filling joints to eliminate air pockets and voids. Mask adjacent surfaces of joint with non-staining masking tape. Force sealant into joint in front of the tip of the "caulking gun" (not pulled after it) and force sealant against sides to make uniform contact with sides of joint and to prevent entrapped air or pulling of sealant off of sides. Fill sealant space solid with sealant.
9. Tooling: Tool exposed joints to form smooth and uniform beds, with slightly concave surface. Finished joints shall be straight, uniform, smooth and neatly finished. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Neatly remove any excess sealant from adjacent surfaces of joint, leaving the work in a neat, clean condition.
10. Replace sealant which is damaged during construction process.

END OF SECTION 07900

SECTION 09900 – PAINTING AND FINISHING

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this section shall be governed by the Contract Documents. Provide materials, labor, equipment and services necessary to furnish, deliver and install all work of this section as shown on the drawings, as specified herein, and/or as required by job conditions.

1.2 DESCRIPTION OF WORK

- A. Work of this Section shall include, but is not necessarily limited to, the following:
 - 1. MT3 Prepare, prime and paint existing steel dunnage in its entirety.
 - 2. T5 Prepare, prime and paint new access ladder.
- B. Related work specified elsewhere:
 - 1. Section 05120 – Structural Steel

1.3 QUALITY ASSURANCE

- A. **Applicator Qualifications:** Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
- B. **Paint Coordination:** Provide finish coats which are compatible with the prime paints used. Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of the total coatings system for the various substrates. Upon request from other subcontractors, furnish information on the characteristics of the finish materials proposed to be used, to ensure that compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify the Architect in writing of any anticipated problems using the coating systems as specified with substrates primed by others.
- C. All paints must conform to the Volatile Organic Compounds (VOC) standards of prevailing codes and ordinances.

1.4 SUBMITTALS

- A. Materials List

1. Before any paint materials are delivered to the job site, submit to the Architect a complete list of all materials proposed to be furnished and installed under this portion of the work.
2. This shall in no way be construed as permitting substitution of materials for those specified or accepted for this work by the Architect.

B. Samples

1. Upon direction of the Architect, prepare and deliver to the Architect two (2) identical sets of Samples of each of the selected colors and glosses painted onto 8-1/2" x 11" x 1/4" thick material. Whenever possible, the material for Samples shall be the materials on which the coating will be applied in the work.

C. Submit data indicating that paint meets Performance Standards specified herein.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.

B. Protection

1. Store only the approved materials at the job site, and store only in a suitable and designated area restricted to the storage of paint materials and related equipment.
2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
3. Use all means necessary to protect paint materials before, during and after application and to protect the installed work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary.

D. Label containers with Product name, type of material, manufacturer's stock number, date of manufacture, contents by volume for pigment and vehicle constituents and thinning instructions.

1.6 PROJECT CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).

- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide best quality and grade painting products for all required painting made by the following manufacturers: Benjamin Moore, PPG, MAB, Glidden, Tnemec, Sherwin Williams, Pratt & Lambert. Comply with number of coats and required minimum mil thicknesses as specified herein.

2.2 MATERIALS

- A. Provide undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by the paint manufacturer and use only to recommended limits.
- B. Colors and Glosses: All colors and glosses shall be as selected by the Architect.
- C. Galvanizing Cleaner: Porter Prep No. 99, applied per manufacturer's instructions.
- D. Galvanizing Primer: Porter No. 299 Alkyd Zinc Dust Primer applied per manufacturer's instructions.
- E. Materials Compatibility: Provide block fillers, primers, finish coat materials and related materials that are compatible with one another and the substrates indicated under conditions of service and application as demonstrated by the manufacturer based on testing and field experience.

2.3 GENERAL STANDARDS

- A. The various surfaces shall be painted or finished as specified below in Article 2.4. However, the Architect reserves the right to change the finishes within the range of flat, semi-gloss or gloss, without additional cost to the Owner.
- B. All paints, varnishes, enamels, lacquers, stains and similar materials must be delivered in the original containers with the seals unbroken and label intact and with the manufacturer's instructions printed thereon.

- C. Paint shall not be badly settled, caked or thickened in the container, shall be readily dispersed with a paddle to a smooth consistency, and shall have excellent application properties.
- D. Paint shall arrive on the job color-mixed except for tinting of under-coats and possible thinning.
- E. All thinning and tinting materials shall be as recommended by the manufacturer for the particular material thinned or tinted.
- F. It shall be the responsibility of the Contractor to see that all mixed colors match the color selection made by the Architect prior to application of the coating.

2.4 SCHEDULE OF FINISHES

- A. For coating all new and existing structural steel use the following:
 - 1. Series 135 Chem Build, by Tnemec Company Inc as primer/base coat.
 - 2. Eudura Shield II 1075 (Asphaltic Acrylic Polyurethane) by Tnemec Company Inc. as top coat.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where painting and finishing are to be applied and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 GENERAL WORKMANSHIP REQUIREMENTS

- A. Only skilled mechanics shall be employed. Application may be by brush or roller. Spray application only upon acceptance from the Architect in writing.
- B. The Contractor shall furnish the Architect a schedule showing when he expects to have completed the respective coats of paint for the various areas and surfaces. This schedule shall be kept current as the job progresses.
- C. The Contractor shall protect his work at all times and shall protect all adjacent work and materials by suitable covering or other method during progress of his work. Upon completion of the work, they shall remove all paint and varnish spots from floors, glass and other surfaces. They shall remove from the premises all rubbish and accumulated materials of whatever nature not caused by others and shall leave his part of the work in clean, orderly and acceptable condition.

- D. Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items or provide ample in-place protection. Upon completion of each space, carefully replace all removed items by workmen skilled in the trades involved.
- E. Remove electrical panel box covers, doors and outlet covers before painting walls. Paint separately and re-install after all paint is dry.
- F. All materials shall be applied under adequate illumination, evenly spread and flowed on smoothly to avoid runs, sags, holidays, brush marks, air bubbles and excessive roller stipple.
- G. Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance and coverage, at no additional cost to the Owner.
- H. All coats shall be dry to manufacturer's recommendations before applying succeeding coats.

3.3 PREPARATION OF SURFACES

- A. Existing Surfaces: Clean existing surfaces requiring paint or finishing, remove all loose and flaking paint or finish and sand surface smooth as required to receive new paint or finish. All existing ornamental metal work is to be fully stripped to bare metal. No "telegraphing" of lines, ridges, flakes, etc., through new surfacing is permitted. Where this occurs, Contractor shall be required to sand smooth and re-finish until surface meets with Architect's approval.
- B. General
 - 1. The Contractor shall be held wholly responsible for the finished appearance and satisfactory completion of painting work. Properly prepare all surfaces to receive paint, which includes cleaning, sanding, and touching-up of all prime coats applied under other Sections of the work. Broom clean all spaces before painting is started. All surfaces to be painted or finished shall be perfectly dry, clean and smooth.
 - 2. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces.
- C. Existing Surfaces: Clean existing surfaces requiring paint or finishing, remove all loose and flaking paint or finish and sand surface smooth as required to receive new paint or finish. No "telegraphing" of lines, flakes, etc. through new surfacing is permitted. Where this occurs, Contractor shall be required to sand smooth and refinish until surface meets with Architect's approval.

D. Wood Surfaces

1. Clean surfaces of dirt, oil and other foreign substances with scrapers, mineral spirits and sandpaper as required. Sand all surfaces smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides and backsides of wood.

E. Metal Surfaces

1. Weld Fluxes: Remove weld fluxes, splatters, and alkali contaminants from metal surfaces in an approved manner and leave surface ready to receive painting.
2. Bare Metal: Thoroughly clean off all foreign matter such as grease, rust, scale and dirt before priming coat is applied. Clean surfaces, where solder flux has been used, with benzene. Clean surfaces by flushing with mineral spirits.
3. Shop Primed Metal: Clean off foreign matter as specified for "Bare Metal". Prime bare, rusted, abraded and marred surfaces with approved primer after proper cleaning of surfaces. Sandpaper all rough surfaces smooth.
4. Galvanized Metal: Prepare surface in accordance with SSPC SP-6 per the Steel Painting Council.
5. Metal Filler: Fill dents, cracks, hollow places, open joints and other irregularities in metal work to be painted with an approved metal filler suitable for the purpose and meeting the requirements of the related Section of work; after setting, sand to a smooth, hard finish, flush with adjoining surface.

3.5 APPLICATION

A. General

1. Apply paint by brush or roller in accordance with the manufacturer's directions. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by the paint manufacturer for material and texture required.
2. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried. Sand between each enamel or varnish coat application with fine sandpaper or rub surfaces with pumice stone where required to produce an even, smooth surface in accordance with the coating manufacturer's directions.
3. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance. Give special attention to ensure that all surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a film thickness equivalent to that of flat surfaces.

4. Finish doors on tops, bottoms, and side edges the same as the faces, unless otherwise indicated.
- B. Paint Thickness: The Contractor shall follow the following minimum dry film (MDF) thickness requirements in the application of two (2) coat and three (3) coat work. The MDF for three (3) coat work shall not be less than 5.0 mils total. The MDF for two (2) coat work shall not be less than 3.0 mils total. The MDF for each coat shall not be less than 1.5 mils. The MDF specified is predicated on average surface roughness.
- C. Scheduling Painting
1. Apply the first coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 2. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- D. Prime Coats: Re-coat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.
- F. "Touching-Up" of Factory Finishes: Unless otherwise specified or shown, materials with a factory finish shall not be painted at the project site. To "touch-up", the Contractor shall use the factory finished material manufacturer's recommended paint materials to repair abraded, chipped, or otherwise defective surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as acceptable to the Architect.
- B. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.7 CLEANING

- A. During the progress of the work, remove from the site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- B. Upon completion of painting work, clean window glass and other paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

- C. At the completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION 09900