

# PROJECT MANUAL

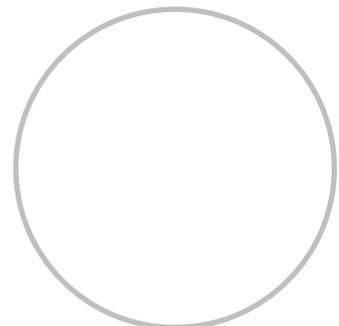
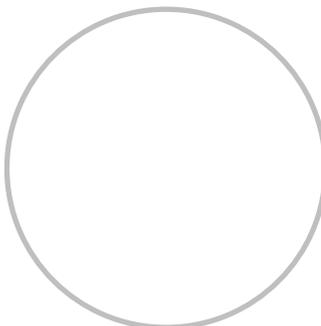
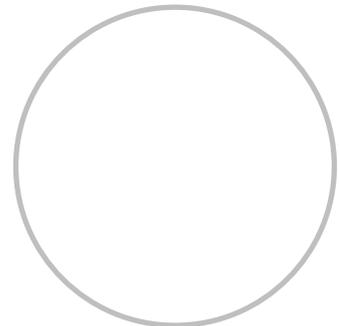
## GENERATOR REPLACEMENT VILLAGE HALL AND DPW GARAGE

Village of Suffern, Rockland County  
61 Washington Ave, Suffern, NY, 10901

DATE: May 21, 2021

### Bid Set

#### *Seals & Signatures*



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# **NOTICE TO BIDDERS**

# NOTICE TO BIDDERS

Sealed bids for Generator Replacement at Village Hall and DPW Garage, Suffern, New York will be received by the Village of Suffern (the “Municipality”), at 61 Washington Ave, Suffern, NY 10901 **until 2:00 PM on June 29, 2021** when they will be publicly opened and read. Each bid must be prepared and submitted in accordance with the Instructions to Bidders and must be accompanied by Bid Security in the form of a certified check, bank check, or bid bond in the amount of five percent (5%) of the total amount of the bid.

No later than forty-five (45) days after the bid opening, the Municipality shall accept bids or reject all bids. After the bid opening, a bid may not be withdrawn prior to the date that is forty-five (45) days after such bid opening. The Municipality reserves the right to reject any or all bids, and advertise for new bids, if in its opinion the best interest of the Municipality will hereby be promoted.

## **CDBG-DR FUNDED PROJECT**

The Municipality seeks replacement of the emergency stand-by generators at the Village Hall and DPW Garage for which the engineering design has been completed.

This project is being financed with U.S. Department of Housing and Urban Development (“HUD”) Community Development Block Grant-Disaster Recovery (“CDBG-DR”) funds administered by the NYS Governor's Office of Storm Recovery (“GOSR”). Attention of bidders is particularly called to Section 3 requirements,<sup>1</sup> M/WBE goals, Federal labor standards, Federal and State prevailing wage rates, online reporting requirements using Elation System, Inc. and other requirements included in the GOSR Supplementary Conditions for Contracts. See Instructions to Bidders for additional information.

## **Minority and Women Owned Business Participation Goals**

The following goals for MWBE participation on this project have been established at:

Minority Owned Business Enterprise (MBE)	15%
Women Owned Business Enterprise (WBE)	15%

## **Equal Opportunity**

The Municipality is an Equal Opportunity employer.

## **PROJECT COMPLETION**

The completion date for this project is 180 Days for Substantial Completion and 30 additional Days for Final Completion after Bidder receives a notice to proceed with construction from the Municipality.

## **PROJECT SPECIFIC LIQUIDATED DAMAGES**

Liquidated damages will be assessed for each day of delay of the contract in the amount of \$150 per day.

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<sup>1</sup> “Section 3” refers to Section 3 from the Housing and Urban Development Act of 1968.

## **CONTRACT DOCUMENTS**

“Contract Documents” has the meaning set forth in Article 1.1 of the General Conditions herein. Starting on the advertisement date, the Contract Documents may be examined free of charge at the Village of Suffern (Village Hall). Copies may be obtained electronically by contacting [csawicki@suffernny.gov](mailto:csawicki@suffernny.gov).

## **DESIGNATED CONTACTS**

The following agency staff has been designated as contacts for this contract:

Charles Sawicki

(845) 357-2602 or  
[csawicki@suffernny.gov](mailto:csawicki@suffernny.gov)

Please note that contacting any other agency staff regarding this contract may be a violation of state or municipal law, rule or regulation, resulting in a determination of contractor non-responsibility.

## **BONDS**

The successful bidder will be required to furnish a Performance Bond and a Payment Bond in the statutory form of public bonds required by Section 137 of the State Finance Law, each for one hundred percent (100%) of the amount of the Contract.

## **REQUESTS FOR INFORMATION**

There will be an on-line Pre-Bid Conference via Zoom approximately one week after the advertisement date. Plan holders shall furnish email addresses and a link will be provided. Questions or requests for clarification may be directed to the Village of Suffern at [csawicki@suffernny.gov](mailto:csawicki@suffernny.gov). Any reply to such an inquiry, including the initial questions, will be communicated electronically by Addendum to all bidders who have obtained the Contract Documents.

**INSTRUCTIONS TO  
BIDDERS**

# INSTRUCTIONS TO BIDDERS

## EXAMINATION OF DOCUMENTS

Carefully examine and be familiar with the Contract Documents (as defined in Article 1.1 of the General Conditions).

Examine the information concerning subsurface or other latent physical conditions. It is presented in good faith but is not intended as a substitute for personal investigation, interpretations or judgment of the Contractor.

## VISIT TO THE SITE

Bidders will have an opportunity to visit the site of the work. Contact the Designated Contact listed on the Notice to Bidders at least 48 hours in advance to request a site visit.

Become familiar with restrictions and regulations relating to the work. Existing restrictions and regulations will not be considered as grounds for any additional cost over the Contract sum.

Contractor will be expected to assume the risk of encountering any subsurface or other latent physical condition which can be reasonably anticipated on the basis of documentary information provided by the Municipality and from inspection and examination of the site.

## RESOLUTION OF DISCREPANCIES AND AMBIGUITIES

Direct all questions regarding the intent or meaning of the drawings or specifications to the Municipality as noted in the Notice to Bidders. Any reply to such an inquiry, including the initial questions, will be communicated by Addendum to all bidders who have obtained drawings and specifications. Inquiries that do not follow the above process will not be answered.

Interpretations of Contract Documents by Municipality personnel or the Design Professional are not binding.

## PREPARATION OF BIDS

Bidders shall submit bids on the bid form attached hereto, including the Non-Collusive/Procurement Lobbying Bidding Certification. Make no changes of any kind in the bid form phraseology, or anywhere on the bid form. Fill in all blank spaces legibly and in ink. All amounts shall be given in full in both writing and also in figures. In case of a discrepancy between the amount written in words and that given in figures, the amount written in words is binding.

When the Contract Documents require alternate price quotations, indicate the amounts to be added to or deducted from the base bid. If the work is to be performed at no change in cost, indicate the word "NONE". Any bid which fails to indicate a sum or the word "NONE", shall be considered informal and may be rejected.

Sign the bid form in the space provided. An officer or a principal of a corporation or a partnership signing for the bidder shall print or type the legal name of the person, partnership or corporation on the line provided and place his or her signature after "SIGN BID HERE". The same procedure shall apply to the bid of a joint venture by two or more firms, except that the signature and title of

an officer or a principal of each member firm of the joint venture shall be required.

Note in the spaces provided on the bid form, the Addenda, by numbers and dates, which have been received. If no Addenda have been received, insert the word "NONE".

Use street address in addition to a Post Office Box address (if any).

### BID SECURITY INFORMATION

Bid Security, in the amount of five percent (5%) of the total amount of the Bid, is required to be submitted with the bid as a guarantee that the bidder will enter into the contract if awarded, and that the bidder will furnish all required information to enter into contract within ten (10) days after receipt of notice of award. Bid Security shall consist of a bid bond or a certified check or a bank check drawn upon a legally incorporated bank or trust company and payable to the Municipality. The bid bond must be from a Surety company approved by the State. The form of any bid bond and the surety issuing it shall be subject to the approval of the Municipality. The Bid Security of the two lowest bidders will be returned upon the acceptance of Performance and Payment Bonds and the execution of the Contract by the lowest bidder. The Bid Security of all other bidders will be returned as soon as possible after the low bidder is determined.

### SUBMISSION OF BID

Submit Bid Form and Bid Security in a sealed envelope.

All bids must be received at or before the time specified in the Notice to Bidders, at the place designated for bid opening.

A late bid will be considered if (1) its arrival at the place designated after the time specified can be shown by documentary or other proofs to be due to the mishandling by employees of the Municipality and (2) that absent such mishandling, the bid would have arrived timely. Delays in the U.S. Mail or any other means of transmittal, including couriers or agents of the State, other than employees of the Municipality will not suffice to excuse late arrival.

A late bid not eligible for consideration will be returned unopened with notification of the reason for its refusal.

### MODIFICATION OF BID

Bid modifications by amendment may be considered on condition that:

1. The amendment arrives before the time set for the bid opening.
2. The amendment is in writing and signed by the bidder.
3. The bid, as amended, conforms in all respects with the Contract Documents.

### WITHDRAWAL OF BID

A bid may be withdrawn at any time prior to the time specified for opening.

After the bid opening, a bid may not be withdrawn prior to the date that is forty-five (45) days after such bid opening. Withdrawal of bid prior to such date would be cause for forfeiture of the Security

Bond.

Notwithstanding the foregoing, after the bid opening, a bidder may request the withdrawal of the bid on the ground of demonstrable mistake in accordance with New York General Municipal Law § 103-11. Upon prompt written application, the Municipality may conduct a hearing. Each element of § 103-11 must be proven by clear and convincing evidence in order to justify withdrawal. The judgment of the Municipality shall be final and conclusive. Should the judgment be against allowing withdrawal, then the failure of the Contractor to proceed would be cause for forfeiture of their Bid Security.

#### DISQUALIFICATION OF BIDDERS

The Municipality reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of the bidder.

#### OPENING OF BIDS

Bids shall be opened as announced in the Notice to Bidders. Bidders or their authorized agents are invited to attend.

#### AWARD OF CONTRACT

The Contract shall be awarded to the lowest responsible and reliable bidder as will best promote public interest unless all bids are rejected by the Municipality.

If alternates are included in the Bidder's bidding documents, the Municipality reserves the right to accept or reject any or all alternates. The lowest bid will be determined by the sum of the base bid and the accepted alternates in the manner prescribed on the Bid Form.

If alternate base bids are indicated in the bidding documents, the low bid will be determined by the lowest amount bid for any of the alternate base bids.

The Municipality reserves the right to reject any or all bids, and advertise for new bids, if in its opinion the best interest of the Municipality will hereby be promoted. In the event that all bids are rejected, each bidder will be so notified.

No later than forty-five (45) days after the bid opening, the Municipality shall accept a bid or reject all bids. Written notification of acceptance with the final Contract Documents shall be mailed or delivered to the selected bidder.

If the selected bidder fails to execute and return the Contract Documents without modification with the bidder's Performance and Payment Bonds and Certificate of Insurance, within ten (10) days of receipt of notification, the Municipality shall have the right to reject the bid and select next lowest bidder. In this case, the Bid Security of the first bidder shall be forfeited.

#### INFORMALITIES

Any bid which fails to conform to the requirements of the Contract Documents may be rejected.

The Municipality may waive any informality or afford the bidder an opportunity to remedy any deficiency resulting from a minor informality or irregularity.

## DETERMINATION OF CONTRACTOR'S RESPONSIBILITY

1. The New York State Vendor Responsibility Questionnaire For-Profit Construction (CCA-2) shall be submitted by the apparent low bidder to the Owner as a condition of contract award.
2. Contractor shall at all times during the contract term remain a responsible vendor. Contractor agrees, if requested by the Municipality or GOSR, to present evidence of its continuing legal authority to do business in New York State, its integrity, experience, ability, prior performance, and organizational and financial capacity to carry out the terms of this contract.
3. The Municipality reserves the right to suspend any or all activities under this contract, at any time, when the Municipality discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Contractual activities may resume at such time as the Municipality issues a written notice authorizing resumption of contractual activities.
4. Notwithstanding the provision of Article 15 of the General Conditions of the contract pertaining to Termination and Revocation, upon written notice to Contractor and a reasonable opportunity to be heard with appropriate Municipality staff, this contract may be terminated by the Municipality at Contractor's expense where Contractor is determined by the Municipality to be non-responsible. In such event, the Municipality may pursue available legal or equitable remedies for breach.

## LIQUIDATED DAMAGES

The Contract Documents contain a provision that the Contractor will pay liquidated damages for each day of delay in the physical completion of the Work.

## NYS GENERAL MUNICIPAL LAW SECTION 105 – TIME PERIOD FOR HOLDING BIDS

Notwithstanding any inconsistent provision of any general, special or local law, whenever as a condition precedent to the reception or consideration of a bid for furnishing supplies, materials, or equipment or performing work for a political subdivision or any officer, board or agency thereof or of any district therein, a deposit of a certified check, money, bonds or other obligations is required, a person or corporation submitting a bid may withdraw the same if no award of the contract be made within forty-five days after the receipt thereof, and upon such withdrawal such deposit shall be forthwith returned. A certified check, money, bonds or other obligations or security deposited to secure a bid shall be retained under the jurisdiction and control of the chief fiscal officer or other officer of the political subdivision or district having custody of its money, until returned to the bidder or forfeited.

## CDBG-DR FUNDED PROJECT

This project is being financed with U.S. Department of Housing and Urban Development (“HUD”) Community Development Block Grant-Disaster Recovery (“CDBG-DR”) funds administered by the NYS Governor's Office of Storm Recovery (“GOSR”). As a condition to receiving CDBG-DR funds for the Project, the Municipality is required to include the GOSR Supplementary Conditions for Contracts (attached hereto as Appendix A to the General Conditions) in each contract which it enters into for the Project. Attention of bidders is particularly called to Section 3 requirements,<sup>2</sup> M/WBE goals, Federal labor standards, Federal and State prevailing wage rates, online reporting requirements using Elation System, Inc. and other requirements included in the GOSR Supplementary Conditions for Contracts.

M/WBE Requirements – Special attention is directed to the M/WBE requirements contained in the GOSR Supplementary Conditions for Contracts (attached hereto as Appendix A to the General Conditions) and the Supplementary Instructions to Bidders for Participation by Minority and Women Owned Business Enterprises (attached hereto as Appendix B to the General Conditions). All bidders must submit an M/WBE Utilization Plan with their bid that utilizes enterprises identified in the New York State Minority and Women-Owned Business Enterprises Directory of Certified Firms in order to promote and assist the participation of certified M/WBEs in an amount equal to fifteen percent (15%) minority-owned business enterprises ("MBE") and fifteen percent (15%) women-owned business enterprise ("WBE") of the total dollar value of the contract. The successful bidder shall use good faith efforts to solicit active participation by such M/WBEs in accordance with the Contract Documents and the submitted M/WBE Utilization Plan. The Contractor agrees to be bound by the provisions of Section 316 of Article 15-A of the Executive Law, which pertain to enforcement of Article 15-A.

Section 3 Requirements – Special attention is directed to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended. The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly person who are recipients of HUD assistance for housing. A sample Section 3 Plan is included in the Contract Documents. The successful bidder will be required to submit a Section 3 Plan as a condition of contract award.

Reporting Requirements – Special attention is called to GOSR reporting requirements. GOSR has adopted the Elation Systems, Inc. web-based compliance management system to assist with Labor Compliance (Davis-Bacon), Minority and Women Owned Business (M/WBE) and Section 3 reporting requirements. The Contractor and its subcontractors must utilize the Elation Systems to satisfy reporting requirements. To this end the Contractor and its subcontractors will be required to register with Elation Systems, Inc. and to attend online training on the use of the system.

Prevailing Wages – This project includes both State and Federal prevailing wages. If Federal Davis-Bacon wage rates differ from the New York State prevailing wage rates, then the higher of the two rates shall apply and be paid to eligible workers.

## WORKERS’ COMPENSATION INSURANCE AND DISABILITY BENEFITS REQUIREMENTS

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<sup>2</sup> “Section 3” refers to Section 3 from the Housing and Urban Development Act of 1968. Instructions to Bidders

A policy covering the obligations of the Contractor in accordance with the Workers' Compensation Law and the Disability Benefits Law covering all operations under the contract, whether performed by the contractor or the subcontractor is required for all contracts. See Article 21.4 and 21.5 of the General Conditions attached hereto. Special attention is called to the insurance requirements contained in the Supplementary Conditions for Contracts attached to the General Conditions as Appendix A.

#### IRANIAN ENERGY SECTOR DIVESTMENT

Bids shall be in compliance with New York State General Municipal Law Section 103-g entitled "Iranian Energy Sector Divestment".

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 its knowledge and belief, that each Bidder is not on the list created pursuant to NYS Finance Law Section 165-a(3)(b). The Bidder shall submit a signed, notarized and dated Iranian Energy Sector Divestment Certification with its Bid.

Said certificate is mandated by Section 103-g of the General Municipal Law. Reference the Iranian Energy Sector Divestment Certificate form included in this Bid document.



## MATERIALS

Except where specifically provided otherwise, whenever any product is specified by the name, trade name, make, model or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality that the Municipality has determined is necessary. The words "or equal" shall be deemed inserted in each instance. The Contractor may use any product equal to that named in the Contract Documents that is approved by the Municipality and which meets the requirements of the Contract Documents provided the Contractor gives timely notice of his or her intent in accordance with the submittal and Scheduling requirements.

## NONDISCRIMINATION

The Contractor shall comply with the non-discrimination in employment and contracting Opportunities laws, regulations, and executive orders referenced in 24 C.F.R. § 570.607. The applicable non-discrimination provisions in Section 109 of the Housing and Community Development Act of 1974 are still applicable. The Contractor shall comply with all other federal statutory and constitutional non-discrimination provisions. During the performance of this contract, the Contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

C. The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such

information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

D. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

E. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

F. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

G. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

H. The Contractor will include the portion of the sentence immediately preceding paragraph (A) and the provisions of paragraphs (A) through (H) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any Subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

With respect to construction contracts and subcontracts exceeding \$10,000, The Contractor shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967; Executive Order 11478 of August 8, 1969; Executive Order 12107 of December 28, 1978; Executive Order 12086

of October 5, 1978; and as supplemented in Department of Labor regulations (41 C.F.R. Part 60). Subrecipient shall include the following Specifications, which are required pursuant to 41 CFR 60-4.3 in all federally assisted contracts and subcontracts. For the purposes of the Equal Opportunity Construction Contract Specifications and Clause below, the term “Construction Work” means the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.

# **BID FORM**

# GENERATOR REPLACEMENT LUMP SUM BID FORM

THE VILLAGE OF SUFFERN RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS. EACH BID FORM SHALL BE ACCOMPANIED BY BID SECURITY IN THE FORM OF A CERTIFIED CHECK OR A BANK CHECK DRAWN UPON A LEGALLY INCORPORATED BANK OR TRUST COMPANY AND MADE PAYABLE TO THE VILLAGE OF SUFFERN IN THE AMOUNT STATED IN THE NOTICE TO BIDDERS.

EACH BID MUST INCLUDE THE FOLLOWING:

- COMPLETED ORIGINAL BID FORM (FULLY EXECUTED – In a sealed Envelope)
- BID SECURITY IN THE AMOUNT OF \$ \_\_\_\_\_

<b>Project</b>	<b>Location</b>	<b>Project Owner</b>
Generator Replacement at Village Hall And DPW Garage	Village Hall and DPW Garage  Village of Suffern Rockland County, New York	Village of Suffern  61 Washington Avenue Suffern, NY 10901

To whom it may concern:

1. The undersigned proposes to perform the Work required for this project in accordance with the Contract Documents for the lump sum price of:

BASE BID AMOUNT (Base Bid Lump Sum Amount):

**To be filled in by Contractor**

<i>In Words</i>
<i>In Numbers</i>

**+** ALLOWANCES:

**To be filled in by the Municipality**

<i>In Words</i> None
<i>In Numbers</i> None

**=** TOTAL BID AMOUNT (Total entered shall be the sum of the above noted Base Bid and Allowance amounts):

**To be filled in by Contractor**

<i>In Words</i>
<i>In Numbers</i>

**In case of Discrepancy between the price in words and that in figures, the price in words will be considered the price bid.**

2. The undersigned agrees to complete the Work noted in the Technical Specifications and Drawings and all Work no later than 180 Calendar Days for Substantial Completion and 30 Calendar Days after Substantial Completion for Final Completion after Contractor receives a notice to proceed with construction from the Municipality. The Contractor agrees, in the event the Contractor fails to complete all the Work on time, to

pay the Municipality liquidated damages, *as stated in the General Conditions*, for each day of delay (per phase) in the physical completion of Work.

3. The undersigned agrees that the bid security shall become the property of the Municipality if this bid is accepted and the bidder does not submit executed copies of the Agreement contained in the Contract Documents within ten (10) days of receipt of a written request. A performance bond and a payment bond, each in an amount equal to the total bid sum, shall be submitted as required with the executed agreements and shall be the statutory form of Public Bonds required by section 137 of the State Finance Law.

4. ***The undersigned hereby certifies his or her compliance with the following:***

**NON-COLLUSIVE / PROCUREMENT LOBBYING BIDDING CERTIFICATION**

By submission of this bid, each bidder and each person signing on behalf of any other 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 his or her knowledge and belief:

- A. The prices of 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 to submit a bid for the purpose of restricting competition.
- D. Within the previous four years, has the bidder been found non-responsible by a government entity? (check one)

\_\_\_\_\_ YES                      \_\_\_\_\_ NO

- E. If “yes”, was the determination of non-responsibility due to (1) engaging in impermissible contacts with a government entity, or (2) the intentional provision of false or incomplete information to a government entity? (check one)

\_\_\_\_\_ YES                      \_\_\_\_\_ NO

(If yes, please explain on a separate sheet.)

The undersigned acknowledges receipt of the following numbered addenda to the Contract Documents:

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The undersigned has carefully examined the Contract Documents and agrees to perform this contract and to provide all goods and / or services, labor, material and equipment necessary for this contract. In addition, the bidder certifies that all information submitted regarding the Procurement Lobbying Law is complete, true and accurate. If such information is found to be intentionally false or intentionally incomplete, the Municipality reserves the right to terminate the resulting contract by providing written notification to the Contractor in accordance with the written notification terms of the contract.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City / State / Zip: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
*(If different from Street Address)*

Federal I.D. #: \_\_\_\_\_

Telephone #: \_\_\_\_\_

Continued on next page →

If a bidder is a corporation, indicate officers below; if a bidder is a firm, indicate members below; if a bidder is a partnership, indicate partners below:

Name

Legal Residence

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(President / Member / Partner)

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(Vice President / Member / Partner)

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(Secretary / Member / Partner)

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(Treasurer / Member / Partner)

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

**Iranian Energy Sector Divestment**

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

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_ Company Name: \_\_\_\_\_

# **AGREEMENT FORM**

**TO BE EXECUTED BY SELECTED BIDDER ONLY**

This Agreement (the "Agreement") made by and between the Village of Suffern, a municipal corporation, hereinafter referred to as the "Municipality" or the "Subrecipient" and \_\_\_\_\_, hereinafter referred to as the "Contractor".

**WITNESSETH**

1) The Contractor agrees that all Contract Documents (as such term is defined in Article 1.1 of the General Conditions) are deemed attached hereto and incorporated in this Agreement. The Contractor agrees to perform the Work in accordance with all Contract Documents incorporated herein for Generator Replacement.

2) The Contractor agrees that the Supplementary Conditions for Contracts (Exhibit E) ("Supplementary Conditions") attached as Appendix A to the General Conditions shall apply to the Contractor. Contractor further agrees that it shall include such Supplementary Conditions in any subcontract entered into in connection with the Project. The Contractor shall also require all subcontractors to flowdown the Supplementary Conditions to all lower-tiered subcontractors as well as the requirement to flowdown such terms to all subcontractors below the lower-tiered subcontractors.

3) The Contractor agrees to complete the Work no later than \_\_\_\_\_ **days after the Contractor receives a notice to proceed with construction from the Municipality.**

4) The Contractor agrees, in the event the Contractor fails to complete all the Work on time, to pay the Municipality liquidated damages as per the General Conditions, Article 14.10, for each day of delay in the physical completion of the Work.

5) The Municipality agrees to pay the Contractor in accordance with the Contract Documents and in consideration of the completion of the Work, as follows:

IN WORDS: \_\_\_\_\_

IN NUMBERS: \$ \_\_\_\_\_

6) Goals for the participation of minority group members and women on this project shall be:

Minority-owned enterprises	15%
Women-owned enterprises	15%

**CONTRACT SIGNATURE PAGE**

IN WITNESS WHEREOF, the MUNICIPALITY and the CONTRACTOR have executed this Agreement on the date and year indicated.

VILLAGE OF SUFFERN

\_\_\_\_\_                      By: \_\_\_\_\_  
Date                              Name: [Insert Name of Signatory]  
   Title: [Insert Title of Signatory]

CONTRACTOR

\_\_\_\_\_                      By: \_\_\_\_\_  
Date                              Name (print): \_\_\_\_\_  
   Title (print): \_\_\_\_\_

Federal ID Number: \_\_\_\_\_





# **GENERAL CONDITIONS**

# GENERAL CONDITIONS

## Table of Articles

1. The Contract Documents
2. Defined Terms
3. Interpretation of the Contract Documents
4. Shop Drawings and Other Submittals
5. Schedule
6. Materials
7. Contractor's Supervision
8. Use of Premises
9. Permits and Compliance
10. Inspection and Material Acceptance
11. Change Orders
12. Site Conditions
13. Suspension of Work
14. Time of Completion and Termination for Cause
15. Termination for Contractor's Employment for the Convenience of the State of New York
16. Disputes
17. Statutory Requirements for the Utilization of Minority and Women Owned Business Enterprises
18. Subcontracts
19. Coordination of Separate Contracts (WICKS Projects)
20. Responsibility for Damage and Indemnification
21. Insurance
22. Occupancy Prior to Completion and Acceptance
23. Payment
24. Audits and Records
25. Labor Law and Prevailing Wages Notifications Provisions
26. Statutory Requirements for Restrictions on Contracts during the Procurement Process and Disclosure of Contacts and Responsibility of Offerers
27. No Assignment
28. Miscellaneous Provisions

## Appendices:

Appendix A – Supplementary Conditions for Contracts (Exhibit E)

Appendix B – Supplemental Instructions for Bidders for Participation by MWBE Enterprises

Appendix C – Federal Labor Standards Provisions

## ARTICLE 1 – THE CONTRACT DOCUMENTS

- 1.1 The “Contract Documents” are comprised of the following documents, in the following order of precedence all of which are hereby incorporated by reference and shall hereinafter be referenced as the “Contract.”
- Appendix A – Supplementary Conditions for Contracts;
  - Appendix B – Supplemental Instructions for Bidders for Participation by MWBE Enterprises;
  - General Conditions;
  - Appendix C – Federal Labor Standards Provisions;
  - Prevailing Wage Rates;
  - Agreement;
  - Technical Specifications and Drawings;
  - Instructions to Bidders;
  - Notice to Bidders;
  - Performance Bond;
  - Payment Bond;
  - All Required Forms and Certificates of Insurance;
  - All Addenda issued prior to the receipt of bids;
  - An Approved MWBE Utilization Plan, if required;
- 1.2 The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations and agreements, either written or oral.
- 1.3 The Contract may not be modified except in accordance with the General Conditions.

## ARTICLE 2 – DEFINED TERMS

- 2.1 The following terms shall have the meanings ascribed to them in this Article, wherever they appear in the Contract Documents.
- 2.2 The term “Bid” means the approved prepared bid form on which the Bidder is to submit or has submitted a bid for the Project contemplated.
- 2.3 The term “Bidder” means any individual, firm or corporation submitting a Bid for the Project contemplated, acting directly or through a duly authorized representative.
- 2.4 The term “Bid Security” means the collateral in the form of a certified check, bank check or bid bond to be furnished by the Bidder as a guarantee of his or her ability to procure the minimum equipment and liquid assets specified and that Bidder shall enter into a Contract with the Municipality for the performance of the Work.
- 2.5 The term “Change Order” means a written order to the Contractor signed by the Contractor and the Municipality authorizing a Change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order.
- 2.6 The term “Comptroller” means the Comptroller of the State of New York.
- 2.7 The term “Contractor” means the person, firm, partnership or corporation executing the Contract or the successor or assignee of the Contractor approved in writing by the

Municipal Representative.

- 2.8 The term “Days” shall mean calendar days.
- 2.9 The term “GOSR” shall mean the Governor’s Office of Storm Recovery.
- 2.10 The term “Liquidated Damages” means the total amount of money to be assessed against the Contractor for delay in completion of the Contract. The total amount of such damages shall not exceed the amount per day stipulated in Article 14.10 times the numbers of Days completion is delayed, unless otherwise specified in the Notice to Bidders.
- 2.11 The term “Material” means any approved material acceptable to the Municipality and conforming to the requirements of the Technical Specifications and Drawings. All processes and materials shall at all times be open to inspection and testing by the Municipality and its authorized representatives.
- 2.12 The term “Municipal Representative” means the representative of the Municipality who will have general direction and supervision of the work. The Municipality may designate any person, persons, firm, partnership or corporation to act as Municipal Representative.
- 2.13 The term “Municipality” shall mean the municipal corporation of the Village of Suffern.
- 2.14 The term “Offerer” shall mean the individual or entity, or any employee, agent of consultant or person acting on behalf of such individual or entity that contacts a governmental entity about a governmental procurement during the restricted period of such governmental procurement.
- 2.15 The term “Payment Bond” is a bond guaranteeing prompt payment of monies due to all persons furnishing labor or materials to the Contractor or any Subcontractor in the prosecution of the Work provided for as set forth in State Finance Law Section 137.
- 2.16 The term “Performance Bond” means a written guaranty from a third party guarantor provided to the Municipality by Contractor upon the award of the Contract to ensure the full performance of the Work and completion of the Project as set forth in the Contract Documents. The form of the Performance Bond is subject to the approval of the Municipality.
- 2.17 The term “Physical Completion Date” means the date upon which the Contractor and the Municipal Representative agree that all deficiencies noted on the final inspection report have been corrected as evidenced by the issuance of the Physical Completion Report.
- 2.18 The term “Physical Completion Report” means the report issued by the Municipal Representative in which all the deficiencies in the Work are noted.
- 2.19 The term “Plan” or “Drawings” means an illustrated graphic that typically includes technical layout information, specification data, and details as required to facilitate the construction of an entire project or smaller unit of work.
- 2.20 The term “Premises” means all land, buildings, structures, or other items of any kind located around or adjacent to the Site and owned, occupied or otherwise used by the Municipality.
- 2.21 The term “Project” means Work at the site carried out pursuant to one or more sets of

Contract Documents.

- 2.22 The term “Project Manual” means the combined Notice to Bidders, Instructions to Bidders, Bid Forms, Agreement Form, General Conditions, Appendix A – Supplementary Conditions for Contracts, Appendix B – Supplemental Instructions to Bidders for Participation by MWBE, the Summary of and Implementation Guidelines for § 139-J of the State Finance Law, Other Sample Forms, Prevailing Wage Rates, the Technical Specifications and Drawings, and the Bid, issued prior to the receipt of bids.
- 2.23 The term “Provide” means to furnish and install, complete, in place and ready for operation and use.
- 2.24 The term “Samples” are physical examples submitted by the Contractor of materials, equipment or workmanship to establish a standard, which the Contractor is required to meet.
- 2.25 The term “Schedule of Values” means a breakdown of the Contract Sum in tabular form that lists the dollar value of individual work items. Schedule to be provided in enough detail to facilitate evaluation of the Payment Application by the Municipality.
- 2.26 The term “Shop Drawings” are drawings, diagrams, illustrations, schedules, test data, performance charts, cuts, brochures and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier or distributor, and submitted by the Contractor and which illustrate a portion of the Work.
- 2.27 The term “Site” means the area within the contract limit lines as identified in the drawings, or adjacent areas designated in writing by the Municipality. Some contracts might involve separate and distinct sites.
- 2.28 The term “State” means the State of New York.
- 2.29 The term “Subcontractor” means a person, firm, partnership or corporation executing a portion of the Work for the “Contractor,” who has the sole responsibility for his or her performance.
- 2.30 The term “Substantial Completion” means that the Work or major milestones thereof as contemplated by the terms of this Contract are sufficiently complete so that the Site can occupy or utilize the Work or designated portion thereof for the use for which it is intended.
- 2.31 The term “Surety” means the entity which is bound with and for the Contractor, and which is engaged to be responsible for the Contractor’s acceptable performance of the Project for which he or she has contracted and for all Labor, Performance, and Material Bonds.
- 2.32 The term “Technical Specifications” means the body of directions and/or requirements contained in this document, together with all documents of any description, and agreements made (or to be made), pertaining to the methods (or manner), of performing the work and quality (as shown by test records) of accepted materials to be furnished under this Contract.
- 2.33 The term “Work” means the total sum of labor, supervision, materials and equipment necessary for the proper completion of the Contract as set forth in the Contract Documents.

### ARTICLE 3 – INTERPRETATION OF CONTRACT DOCUMENTS

- 3.1 The Technical Specifications and Drawings are complementary, and what is called for by one shall be as binding as if called for by all. It is not intended to include work not properly inferable from the Technical Specifications and Drawings. In all cases, labelled dimensions shall take precedence over scaled dimensions, and the larger scale details take precedence over smaller scale drawings. In the case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern.
- 3.2 Upon his or her own initiative or the Contractor's written request, the Municipality may issue written interpretation or drawings necessary for the proper execution or progress of the work which interpretation shall be consistent with and reasonably inferable from the Contract Documents.
- 3.3 The language of the Contract Documents is directed at the Contractor unless specifically stated otherwise.
- 3.4 The organization of the Technical Specifications into divisions, sections and articles, and the 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.
- 3.5 In the event of conflicting provisions in the Contract Documents, the Technical Specifications shall take precedence over the Drawings.
- 3.6 If during the performance of the Work, the Contractor identifies a conflict in the Contract Documents, or a variation from any applicable statute, rule or regulation, the Contractor shall promptly notify the Municipality in writing of the conflict. The Municipality shall promptly acknowledge the notification in writing and advise the Contractor, pursuant to Paragraph 3.2 of these General Conditions, as to the interpretation to be followed in the performance of the Work.

### ARTICLE 4 – SHOP DRAWINGS AND OTHER SUBMITTALS

- 4.1 Shop Drawings (see Article 2.26)
- 4.2 Product data are manufacturer's catalog sheets, brochures, standard diagrams, illustrations, schedules, performance charts, test data, standard schematic drawings, specifications and installation instructions.
- 4.3 Samples are physical examples submitted by the Contractor of materials, equipment or workmanship to establish a standard that the Contractor is required to meet.
- 4.4 The Contractor and the Municipality shall adhere to the submittal and scheduling requirements for Shop Drawings, product data and Samples set out in the Technical Specifications and Drawings.
- 4.5 By approving and submitting Shop Drawings and samples, the Contractor represents that the Contractor has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data and that he or she has checked and

coordinated each Shop Drawing and Sample with the requirements of the Contract Documents.

- 4.6 The Municipality's approval of Shop Drawings, product data and Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has previously informed the Municipality of the deviation in a separate writing at the time of submission and received written approval for the specific deviations. The Municipality's approval shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings, product data or samples.
- 4.7 No portion of the Work requiring Shop Drawings, product data or Sample submission shall be commenced until the appropriate submission has been approved by the Municipality.
- 4.8 Any portions of the Work requiring Shop Drawings, product data and Samples shall be installed in accordance with the approved Shop Drawings, product data and Samples.

#### ARTICLE 5 – SCHEDULE

- 5.1 Each Contractor shall deliver to the Municipality and receive approval prior to commencing work, a detailed schedule concerning his or her operations upon the Project on a form acceptable to the Municipality, which shall indicate completion within the specified time frame, to the satisfaction of the Municipality.
- 5.2 During the term of this Agreement, the Municipality may require any Contractor to modify any schedules which he or she has submitted either before or after they are approved so that:
  - (a) The Work or the Project may be properly progressed.
  - (b) Changes in the Work or the Work of other Contractors are properly reflected in these schedules.

#### ARTICLE 6 – MATERIALS

- 6.1 All materials, equipment and articles used permanently in the Work that become the property of the Municipality shall be new unless specifically stated otherwise in the Contract.
- 6.2 Except where specifically provided otherwise, whenever any product is specified by the name, trade name, make, model or catalog number of any manufacturer or supplier, the intent is not to limit competition, but to establish a standard of quality that the Municipality has determined is necessary. The words "or equal" shall be deemed inserted in each instance. The Contractor may use any product equal to that named in the Contract Documents that is approved by the Municipality and which meets the requirements of the Contract Documents provided the Contractor gives timely notice of his or her intent in accordance with the submittal and scheduling requirements.
- 6.3 The Contractor shall have the burden of proving at the Contractor's own cost and expense to the satisfaction of the Municipality that the proposed product is equal to the named product. The Municipality may establish criteria for product approval. The Municipal Representative shall determine in his or her absolute discretion whether a proposed

product is to be approved.

- 6.4 If the Contractor fails to comply with the provisions of this Article, or if the Municipal Representative determines that the proposed product is not equal to that named, the Contractor shall supply the product named.
- 6.5 The Contractor shall have and make no claim for the extension of time or for damages because the Municipal Representative requires a reasonable period of time to consider a product proposed by the Contractor or because the Municipal Representative disapproves such a product.
- 6.6 Where optional materials or methods are specified, or where “or equal” submissions are approved, the Contractor shall make all adjustments to contingent work, whether the contingent work be the Work of its contract or the Work of another Contract, necessary to accommodate the option or “or equal” product it selects without extra or additional cost.
- 6.7 The Contractor shall within 48 hours remove from the Premises all materials rejected by the Municipality as failing to conform to the Contract, whether incorporated in the Work or not, and the Contractor shall promptly substitute satisfactory materials in accordance with the Contract and without expense to the Municipality. In addition, the Contractor shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.
- 6.8 Royalties and patents: The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and shall defend, indemnify and save the Municipality harmless from loss on account thereof, except that the Municipality shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified.
- 6.9 Asbestos Free Materials: All materials used for construction shall be free of asbestos containing materials. If asbestos is found in installed products not previously approved by the Municipality, then it will be the responsibility of the Contractor to abate the asbestos containing material and replace the work with new asbestos free materials at no cost to the Municipality.
- 6.10 The Contractor agrees that if the value of this Contract exceeds \$100,000 all structural steel, reinforcing steel and other major steel items to be incorporate in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

#### ARTICLE 7 – CONTRACTOR'S SUPERVISION

- 7.1 The Contractor shall designate a competent supervisor for the Work to represent the Contractor at the site at all times with authority to act for the Contractor (“Contractor’s Representative”). The Contractor shall notify the Municipality in writing of the identity of the Contractor’s Representative prior to the commencement of the Work. All directions given the Contractor's Representative shall be as binding as if given to the Contractor.
- 7.2 Should the Municipality deem any employee of the Contractor incompetent or negligent or for any cause unfit for his or her duty, the Contractor shall dismiss such employee and he or she shall not again be employed on the Work.

- 7.3 The Contractor's use of any Subcontractor shall not diminish the Contractor's obligations to complete the Work in accordance with the Contract. The Contractor shall control and coordinate the Work of its Subcontractors.
- 7.4 The Contractor shall be responsible for informing its Subcontractors and suppliers of all the terms, conditions and requirements of the Contract Documents including, but not limited to the General Conditions, Appendix A – Supplementary Conditions for Contracts, Appendix B – Supplemental Instructions to Bidders for Participation by MWBE, the Summary of and Implementation Guidelines for § 139-J of the State Finance Law, the Agreement Form, Other Sample Forms, Federal Labor Standards Provisions, Prevailing Wage Rates, the Technical Specifications and Drawings, the Bid Notice and Instructions to Bidders, and changes made by any other addenda.

#### ARTICLE 8 – USE OF PREMISES

- 8.1 If the Premises are occupied, the Contractor, the Contractor's Subcontractors and their employees shall comply with the regulations governing access to, operation of, and conduct while in or on the Premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business.
- 8.2 The Contractor, the Contractor's Subcontractors and their employees shall not have access to or be admitted into any area of the Premises outside the Site except with the written permission of the Municipality.

#### ARTICLE 9 – PERMITS AND COMPLIANCE WITH APPLICABLE LAWS

- 9.1 The Contractor shall obtain, maintain and pay for all permits and licenses legally required and shall give all notices, pay all fees, and comply with all laws, rules and regulations applicable to the Work at no additional cost.
- 9.2 Contractor shall comply with all federal and state laws, codes and regulations applicable to the conduct of the activities authorized by this Contract.
- 9.3 If, in carrying out this Work, a harmful dust hazard is created for which appliances or methods for the elimination of harmful dust have been approved by the Industrial Board of Appeals, then the Contractor shall install, maintain and effectively operate such appliances and methods during the life of this Contract; and in case of Contractor's failure to comply, as provided by Section 222-a of the Labor Law, the Contract shall be void.
- 9.4 In accordance with Worker's Compensation Law (WCL) §141-b (Suspension and Debarment), any person subject to a final assessment of civil fines or penalties or a stop-work order, or that has been convicted of a misdemeanor for a violation of WCL §§ 26 (Enforcement of Payment in Default), 52 (Effect of Failure to Secure Compensation) or 131 (Payroll Records), and any substantially-owned affiliated entity of such person, shall be ineligible to submit a bid on or be awarded any such public work contract or subcontract with the State, any municipal corporation or public body for a period of one (1) year from the final determination or conviction. Any person convicted of a felony under Article 8 (Administration) of the WCL, or a misdemeanor under WCL §§125 (Job Description Prohibited Based on Prior Receipt of Benefits) and 125-a (Civil Enforcement) shall be

ineligible to submit a bid or be awarded any public work contract or subcontract with the State, any municipal corporation or public body for a period of five (5) years from such conviction.

- 9.5 The Contractor certifies and warrants that all heavy duty vehicles, as defined in New York State Environmental Conservation Law (ECL) section 19-0323, to be used under this Contract, will comply with the specifications and provisions of ECL section 19-0323 and any regulations promulgated pursuant thereto, which requires the use of BART and ULSD, unless specifically waived by New York State Department of Environmental Conservation. Qualification for a waiver under this law will be the responsibility of the Contractor.
- 9.6 During the term of this Contract, the Contractor agrees to report any observed or suspected illegal activity of its employees, agents or other third parties, to the Municipality, GOSR, the State Inspector General or other law enforcement agency. Failure to report criminal conduct associated with a contract awarded by the Municipality, shall be considered a material breach of this Contract and may provide grounds for disqualification of the subject Contractor or Subcontractor for award of future contracts. The Contractor shall include the provisions of this section in every subcontract, in such a manner that the provisions will be binding upon each Subcontractor as to work performed in connection with this Contract.

#### ARTICLE 10 – INSPECTION AND MATERIAL ACCEPTANCE

- 10.1 The Municipality will inspect and test the Work at reasonable times at the Site, unless the Municipality determines to make an inspection or test at the place of production, manufacture or shipment. Such inspection or test shall be conclusive as to whether the material and workmanship inspected or tested conforms to the requirements of the Contract. Such inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance. Conducting inspections or tests shall not diminish the Municipality the right to reject the completed Work. The Contractor shall, without charge, promptly correct any Work the Municipality determines does not conform to the Contract Documents unless in the public interest the Municipality consents to accept such Work with an appropriate adjustment in the Contract price. The Contractor shall promptly remove rejected material from the Premises.
- 10.2 If the Contractor does not promptly correct rejected Work including the Work of another contractor or Subcontractor destroyed or damaged by removal, replacement, or correction, the Municipal Representative may (1) correct such Work and charge the cost thereof to the Contractor; or (2) terminate the Contract in accordance with Article 15 of General Conditions.
- 10.3 The Contractor shall furnish promptly, without additional charge, all facilities, labor, material and equipment reasonably needed to perform in a safe and convenient manner such inspections and tests, as the Municipal Representative requires.
- 10.4 The Contractor shall keep the Municipal Representative informed of the progress of the Work and particularly when the Contractor intends to cover Work not yet inspected or tested. All inspection and tests by the Municipal Representative shall be performed in such manner as not to unreasonably delay the Work. The Contractor shall be charged with any

additional cost of inspection when the Work is not ready at the time specified by the Municipal Representative for inspection.

- 10.5 Should the Municipal Representative determine at any time before acceptance of the entire Work to examine Work already completed by removing, uncovering or testing the same, the Contractor shall, on request, promptly furnish all necessary facilities, labor, materials and equipment to conduct such inspection, examination or test. If such Work is found to be defective or nonconforming in any material respect, the Contractor shall defray all the expenses of such examination and satisfactory reconstruction. If the Work is found to meet the requirements of the Contract Documents, the Municipal Representative shall compensate the Contractor for additional services involved in such examination and reconstruction. If completion of the Work has been delayed, the contractor may request a suitable extension of time.
- 10.6 No previous inspection or certificates of payment shall relieve the Contractor from the obligation to perform the Work in accordance with the Contract Documents.
- 10.7 The Contractor shall remedy all defects, and pay for the cost of any damage to other Work resulting therefrom, notice of which shall have been provided within a period of one year from the Physical Completion Date in accordance with the General Conditions.

#### ARTICLE 11 – CHANGE ORDERS

- 11.1 The Municipality may make changes by altering, adding to or deducting from the Work, and adjusting the Contract price accordingly. All changes to the Work shall be executed in conformity with the terms and conditions of the Contract Documents unless otherwise provided in the Order on Contract. Any change in the Contract sum or time for completion shall be adjusted prior to issuing the Order on Contract.
- 11.2 No written or oral instructions shall be construed as directing a change in the Work unless in the form of an Order of Contract signed by the Municipality and the Contractor. The Order of Contract shall describe or enumerate the Work to be performed and state the price to be added to or deducted from the Contract sum. If the extent or cost of the Work is not determinable until after the changed Work is performed, the Order on Contract shall specify the method for determining the cost and extent of the changed Work when completed. If the Contractor disagrees as to any element of the Order on Contract, the Contractor shall indicate the disagreement in writing on the face of the Order on Contract and promptly proceed in accordance with the Order on Contract.
- 11.3 If the Contractor is directed to perform Work for which the Contractor believes he or she is entitled to an Order of Contract, the Contractor shall give the Municipal Representative prompt written notice and await instructions before proceeding to execute such Work. The Municipal Representative may order the Contractor to execute the Work and proceed under the Disputes Clause.
- 11.4 The value of any Order of Contract shall be determined by one or more of the following methods:
  - (a) By acceptance of prices negotiated or established based on estimated cost plus overhead and profit as applicable.

- (b) By Prices specifically named in the Technical Specifications or Bid Form.
  - (c) By acceptance of agreed unit prices based on estimated cost plus overhead and profit as applicable.
  - (d) By estimate of the actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
  - (e) By actual cost of labor and materials plus overhead and profit, cost to be determined as the work progresses.
  - (f) By estimate of the value as deducible from the approved detailed estimate.
- 11.5 Overhead shall be defined as an allowance to compensate for all costs, charges and expenses, direct or indirect, except for the actual cost of labor and materials as defined by paragraph 11.6. Overhead shall be considered to include, but not limited to insurance (other than as mentioned in paragraph 11.6) bond or bonds, field and office supervisors and assistants above the level of foreman, use of small tools and minor equipment, incidental job burdens, general office expenses, etc.
- 11.6 Actual cost of labor and material shall be defined as the amount paid for the following costs, to the extent determined reasonable and necessary:
- (a) Cost of materials delivered to the job site for incorporation into the Contract Work. The value of any material removed and disposed of by the Contractor shall be a credit to the Municipality.
  - (b) Wages paid to workers and foreman and wage supplements paid to labor organizations in accordance with current labor agreements.
  - (c) Premiums or taxes paid by the Contractor for Worker's compensation insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.
  - (d) Sales taxes paid as required by law.
  - (e) Allowance for use of construction equipment (exclusive of hand tools and minor equipment), as approved for use by the Municipal Representative.
    - i. Rented equipment will be paid for at the actual rental cost.
    - ii. Gasoline, oil and grease required for operation and maintenance will be paid for at the actual cost.
    - iii. When, in the opinion of the Contractor, and as approved by the Municipal Representative, suitable equipment is not available on the site, the moving of said equipment to and from the site will be paid for at actual cost.
    - iv. Self-owned equipment, including equipment rented from controlled or affiliated companies. The rate on self-owned equipment used for periods of under five (5) days will be an hourly rate established by taking any published rate which is mutually acceptable to the Contractor and the Municipal Representative and determining an hourly rate on the basis of twenty-two (22) days per month and eight hours per day. Equipment used for periods of five (5) days or more will be billed at a rate equal to

forty-five percent (45%) of the monthly rate. In the alternative, the Municipal Representative may approve for reimbursement a rate representing the allocable costs of ownership.

- 11.7 Regardless of the method used to determine the value of any Order of Contract, the Contractor will be required to submit evidence satisfactory to the Municipal Representative to substantiate each and every item that constitutes his or her proposal of the value of the change. The amounts allowed for overhead and profit shall not exceed the applicable percentages as established in the two following paragraphs.
- 11.8 If the work is done directly by the Contractor, overhead in an amount of ten percent (10%) may be added if method (a), (c), (d) or (e) is used, and to the cost of the labor and materials plus overhead there may be added ten percent (10%) for profit. The percentages for overhead and profit may vary accordingly to the nature, extent and complexity of the Work involved, but in no case shall exceed the percentages set forth in this paragraph and in paragraph 11.9. No percentages for overhead and profit will be allowed on payroll taxes or on the premium portion of overhead pay.
- 11.9 If the Work is done by a subcontractor, subcontractor's overhead in the amount of five percent (5%) may be added to the cost of labor and materials if method (a), (c), (d), and (e) is used and to the cost of labor and materials plus overhead there may be added ten percent (10%) for the subcontractor's profit. No percentage for overhead and profit will be allowed on payroll taxes or on the premium portion of overtime pay. However, to the extent that the aggregate dollar value of Orders on Contract exceeds \$75,000, the ten percent (10%) overhead applied to total costs of labor and materials incurred by the prime Contractor shall be reduced to five percent (5%). In addition, on all individual Orders of Contract in excess of \$75,000, the overhead shall be no more than five percent (5%) of the total actual cost of labor and materials incurred by the Contractor, and the combined Contractor's overhead and profit allowance applied to subcontract billings shall be no more than five percent (5%).
- 11.10 The Municipal Representative shall determine by which of the foregoing methods of value of any changes shall be computed.
- 11.11 In computing the value of an Order on Contract which involved additions and deductions of Work and the added Work exceeds the omitted Work, overhead and profit shall be computed on the amount by which the cost of additional labor material exceeds the cost of the omitted labor and material, except no additional overhead and profit shall be allowed on value of work determined by method (b).
- 11.12 In computing the value of an Order of Contract which involves deductions and additions of Work and the omitted work exceeds the added Work, the Contractor will be allowed to retain the overhead and profit on the amount by which the omitted Work exceeds the added Work, except that no overhead and profit shall be retained on value of Work determined by method (b).
- 11.13 The Contractor may retain overhead and profit on an Order of Contract which involved deductions only, except that no overhead and profit shall be considered on value of Work determined by method (b).

## ARTICLE 12 – SITE CONDITIONS

- 12.1 If the Contractor encounters subsurface or other latent physical conditions at the Site which differ substantially from those shown, described or indicated in such information provided in the Contract Documents or from any information which is a public record and which subsurface or other latent physical condition could not have been reasonably anticipated from that information or from the Contractor's own inspection and examination of the Site, the Contractor shall give immediate written notice to the Municipal Representative before any such condition is disturbed. The Municipal Representative shall promptly investigate and, if it is determined that the conditions substantially differ from those that should have been reasonably anticipated, shall make such changes in the Contract Documents as may be required. If necessary, the Contract sum and completion date shall be adjusted by Change Order, to reflect any increase or decrease in the cost of, or time required for, performance of the Contract.
- 12.2 The Contractor shall protect trees, shrubbery and other natural features or structures within the Premises from being cut, trimmed, or injured, unless directed by the Municipal Representative for preparing the Site for the Work. The Contractor shall prevent employees from tramping in the shrubbery and vehicles from being driven through wooded lands. When necessary, the Contractor shall protect trees adjacent to the premises in a matter satisfactory to the Municipal Representative.
- 12.3 The Contractor shall provide and replant at its own expense trees, shrubbery, and other natural features destroyed or damaged. The Contractor shall conduct its operations within the Premises as directed by the Municipal Representative.

#### ARTICLE 13 – SUSPENSION OF WORK

- 13.1 Suspension of Work: The Municipal Representative may order the Contractor in writing to suspend, delay, or interrupt performance of all or any part of the Work for a reasonable period of time as the Municipal Representative, in his or her sole discretion, may determine ("Suspension Order"). The order shall contain the reason or reasons for issuance that may include but shall not be limited to the following: latent field conditions, substantial program revisions, civil unrest, and acts of God.
  - 13.1.1 Upon receipt of a Suspension Order, the Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect such Work from loss or damage.
  - 13.1.2 The Contractor specifically agrees that a suspension, interruption or delay of the performance of the Work pursuant to this Article shall not increase the cost of performance of the Work of this Contract.
  - 13.1.3 A Suspension Order issued by the Municipal Representative pursuant to this Article shall have duration not to exceed thirty (30) days. If the Contractor is not directed to resume performance of the Work affected by said Suspension Order prior to the expiration of thirty (30) days, the Contract may be terminated for the convenience of the Municipality and the Contractor shall be reimbursed as provided by Article 15.
- 13.2 Stop Work Orders: If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the

Work in such a way that the completed Work will conform to the Contract Documents, the Municipal Representative may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Municipal Representative to stop the Work shall not give rise to any duty on the part of the Municipal Representative to exercise this right for the benefit of Contractor or any other party.

13.2.1 Contractor shall bear all direct, indirect and consequential costs of such order to Contractor to stop Work including but not limited to fees and charges of engineers, architects, attorneys and other professionals, any additional expenses incurred by the Municipality due to delays to others performing work under a separate contract with the Municipal Representative, and other contractual obligations, and Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to any extension of contract time or recovery of any delay damages due to the order to stop Work.

13.2.2 In the event that Contractor fails to pay such costs within thirty (30) days after receipt of an invoice from the Municipality, a Change Order or proposed Change Order may be issued incorporating the unpaid amount as an appropriate reduction in the Contract Price. If the parties are unable to agree as to the amount thereof, the Contractor may make a claim therefore as provided in Article 11 of the General Conditions.

#### ARTICLE 14 – TIME OF COMPLETION AND TERMINATION FOR CAUSE

14.1 All time limits set forth in this Contract are of the essence. Failure by the Contractor to meet with the Contract deadlines shall be cause for the Municipality to assess Liquidated Damages.

14.2 Termination for Cause. In addition to all other rights of termination provided by law and in this Contract, if any one or more of the following events shall occur, that is to say:

14.2.1 If Contractor commences a voluntary case under any chapter of the Bankruptcy Code, as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

14.2.2 If a petition is filed against Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

14.2.3 If Contractor makes a general assignment for the benefit of creditors;

14.2.4 If a trustee, receiver, custodian or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of property of Contractor is for the purpose of enforcing a lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors;

14.2.5 If Contractor admits in writing an inability to pay its debts generally as they

become due;

- 14.2.6 If Contractor fails to perform the Work in accordance with the Contract Documents, including, but not limited to, failure to supply sufficient skilled workers, or suitable materials or equipment, or failure to adhere to the progress schedule established under Article 5.1 as revised from time to time or failure to submit an updated schedule as required by Article 5.2;
  - 14.2.7 If Contractor disregards the authority of the Municipal Representative; or
  - 14.2.8 If Contractor filed certification in accordance with New York State Finance Law § 139-k which was intentionally false or intentionally incomplete.
- 14.3 If in the judgment of the Municipal Representative, the Contractor fails or refuses to prosecute the Work in accordance with the Contract, or fails to complete the Work within the time provided by the Contract, the Municipal Representative may terminate the Contract by written notice to the Contractor in the manner set forth in Article 28.2 herein and to the Surety in the manner set forth in the Performance Bond. In such event, the Municipal Representative shall direct the Surety to complete the Work. If the Surety fails or refuses to complete the Work, the Municipal Representative may take over the Work and prosecute it to completion by contract publicly let or otherwise, and may take possession of and utilize in completing the Work, such of the Contractor's materials, equipment and plant as may be on the Site of the Work. Whether or not the right to terminate is exercised, the Contractor and the Surety shall be liable for any damage to the Municipality resulting from the Contractor's failure or refusal to complete the Work in accordance with the Contract or his or her failure to complete the Work within the time provided by the Contract.
- 14.4 If the Municipal Representative terminates the Contract for failure to prosecute the Work, in addition to any damages provided for by law, the delay shall occasion the payment of damages by Contractor which shall consist of Liquidated Damages until the Work is physically completed, plus any increased costs the Municipality incurs in completing the Work.
- 14.5 The Contract shall not be so terminated nor the Contractor charged with resulting damage if:
- (a) The delay in the completion of the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor including, but not restricted to, acts of God, acts of the public enemy, acts of another Contractor in the performance of a contract with the Municipality, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers; and
  - (b) The Contractor shall notify the Municipal Representative in writing of the causes of delay within ten (10) days from when the Contractor knew or ought to have known of any such delay.
- 14.6 The Municipal Representative will ascertain the facts and the extent of the delay and extend the time for completing the Work when, in the Municipal Representative's judgment, the findings of fact justify such an extension, and his or her findings of fact shall be final and

conclusive on the parties, subject only to appeal as provided in these General Conditions.

- 14.7 If after notice of termination of the Contract, it is determined for any reason that the Contractor was not in default or that the delay was excusable, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to the termination for convenience clause.
- 14.8 The rights and remedies of the Municipality provided in this clause are in addition to any other rights and remedies provided by law or under this Contract, provided that damages for delay incurred by the Contractor shall be as specified in Articles 14.3 and 14.4.
- 14.9 The Municipality reserves the right to terminate this Contract in the event it is found that the certification filed by the Contractor in accordance with New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, the Municipality may exercise its termination right by providing written notification to the Contractor in accordance with the written notification terms of the Contract.
- 14.10 **Liquidated Damages:** The work represented in this Contract is part of a comprehensive program, undertaken by the Municipality on behalf of GOSR and the State of New York in the belief that the expenditures are justified by the benefits which accrue to the public. If the public does not get the full and complete use of facilities for which the expenditures are made, a resulting financial loss cannot be exactly computed. Accordingly, a deduction, indicated below or in the Notice to Bidders, will be made from the Contract price for every calendar day after the completion date specified in the Contract Documents for which the Contract is not completed in every detail. Said sum, because of the difficulty in determining accurately the loss to the Municipality, is hereby fixed and agreed as the Liquidated Damages that the Municipality will suffer by reason of such delay, and not as a penalty; such Liquidated Damages, as defined for this Project, are understood and agreed to be the actual cost of all extra inspection, salaries of contingent force, and other engineering expenses entailed upon the Municipality as a result of such delay. The Liquidated Damages set forth herein apply only to a delay in completion of the Project and in no way are such damages to be interpreted as being the Municipality's exclusive remedy under the Contract or in Law.

<b>SCHEDULE OF LIQUIDATED DAMAGES</b>		
Original Total Contract Bid Price		Liquidated Damages per Calendar Day
<b>From More Than</b>	<b>To and Including</b>	
\$0	\$100,000	\$150
\$100,000	\$500,000	\$150
\$500,000	\$1,000,000	\$150
\$1,000,000	\$2,000,000	\$200
\$2,000,000	\$5,000,000	\$200
\$5,000,000	\$10,000,000	\$500

\$10,000,000	\$20,000,000	\$500
\$20,000,000		\$500

14.11 Contractor Responsibility:

- (a) Contractor shall at all times during the contract term remain a responsible vendor. Contractor agrees, if requested by the Municipality or GOSR, to present evidence of its continuing legal authority to do business in New York State, its integrity, experience, ability, prior performance and organizational and financial capacity to carry out the terms of this contract.
- (b) The Municipality reserves the right to suspend any or all activities under this contract, at any time, when the Municipality discovers information that calls into question the responsibility of Contractor. In the event of such suspension, Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, Contractor must comply with the terms of the suspension order. Contractual activities may resume at such time as the Municipality issues a written notice authorizing resumption of contractual activities.
- (c) Notwithstanding the provision of Article 14 of the contract pertaining to Termination and Revocation, upon written notice to Contractor and a reasonable opportunity to be heard with appropriate Municipality staff, this contract may be terminated by the Municipality at Contractor’s expense where Contractor is determined by the Municipality to be non-responsible. In such event, the Municipality may pursue available legal or equitable remedies for breach.

ARTICLE 15 – TERMINATION OF CONTRACTOR’S EMPLOYMENT FOR THE CONVENIENCE OF THE MUNICIPALITY

15.1 The Municipal Representative may terminate this Contract whenever in the Municipal Representative's judgment the public interest so requires by delivering to the Contractor a notice of termination specifying the extent to which performance of Work under the Contract is terminated and the date upon which such termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from such termination. The Municipality shall pay the Contractor the sum of:

- (a) The costs actually incurred up to the effective date of such termination,
- (b) The cost of settling and paying claims arising out of the termination of Work under subcontracts or orders exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the subcontractor prior to the effective date of the Notice of Termination of Work under this Contract, which amounts shall be included in the cost on account of which payment is made under (a) above, and
- (c) The rate of profit and overhead on (a) and (b). If the Contractor would have sustained a documentable loss on the entire Contract had it been completed, no

profit shall be included or allowed under this subparagraph and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss.

- 15.2 In no event shall the Contractor's compensation exceed the total Contract amount.
- 15.3 The amount of progress payments made to the Contractor prior to the date of termination was effective shall not be conclusive evidence of costs incurred, but progress payments shall be offset against any payment which the Municipality makes to the Contractor as a result of such termination.

#### ARTICLE 16 – DISPUTES

16.1 The Contractor shall submit any dispute relating to the performance of this Contract to the Municipal Representative, who shall reduce his or her decision to writing and furnish a copy thereof to the Contractor. The Contractor shall submit the matter in dispute to the Municipal Representative in writing no more than fifteen (15) days after he or she knew or should have known of the facts which are the basis of the dispute. The decision of the Municipal Representative shall be final and conclusive unless within twenty (20) days from the date of receipt of the decision, the Contractor serves upon the Municipal Representative a written appeal by certified mail.

Upon appeal, the decision of the Municipal Representative shall be final and conclusive unless the decision is fraudulent, capricious, arbitrary or so grossly erroneous as necessarily to imply bad faith or is not supported by substantial evidence. In connection with any appeal proceeding held pursuant to this Article, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of his or her appeal. Pending final determination of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract in accordance with the Municipal Representative's decision. Nothing in this Contract shall be construed as making final the decision of any administrative official upon a question of law.

#### ARTICLE 17 – STATUTORY REQUIREMENTS FOR THE UTILIZATIONS OF MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

17.1 The Contractor shall make a good faith effort to solicit active participation in the Work by enterprises identified in the directory of certified businesses obtainable from the Division of Minority and Women's Business Development, New York State Department of Economic Development in accordance with Part II, Section 6 of the Supplementary Conditions.

#### ARTICLE 18 – SUBCONTRACTS

18.1 Before any part of the Contract shall be sublet, the Contractor shall submit to the Municipal Representative in writing the name of each proposed Subcontractor and supplier and obtain the Municipal Representative's written consent to such Subcontractor and supplier. The names shall be submitted in ample time to permit acceptance or rejection of each proposed

Subcontractor by the Municipal Representative without causing delay in the work of the Project.

- 18.2 If the value of the Subcontract is \$10,000 or more, the Contractor shall promptly furnish a “NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR PROFIT CONSTRUCTION (CCA-2)” for each Subcontractor and receive approval of the same prior to delivery of materials or performance of work from this Subcontractor.
- 18.3 The Contractor's use of subcontractors shall not diminish the Contractor's obligations to complete the work in accordance with the Contract. Each Contractor shall control and coordinate the work of his or her Subcontractors.
- 18.4 The Contractor shall be responsible for informing the Subcontractors of all the terms, conditions and requirements of the Contract Documents including, but not limited to the General Conditions and the Technical Specifications.

#### ARTICLE 19 - COORDINATION OF SEPARATE CONTRACTS (WICKS PROJECTS)

- 19.1 The Municipality may award other contracts related to the Work. In that event, the Contractor shall coordinate his or her work with the Work of other contractors in such manner as the Municipality may direct. All contractors shall exchange working drawings, examine them and report any interferences or objections to the Municipal Representative, in order to avoid delays. Each contractor shall control and coordinate the work of his or her Subcontractors, if any. The Municipality shall approve or require the modification of the work schedules of all contractors to the end that the Project may be progressed as expeditiously as the case permits.
- 19.2 If any part of the Work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report in writing to the Municipal Representative any defects in such work. The failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the Contractor's Work.
- 19.3 The Municipal Representative shall issue appropriate directions and take such other measure to coordinate and progress the Work as may be reserved to the Municipality in the Contract, and which an ordinarily reasonable project owner in similar circumstances would be expected to take. However, the Municipality shall not be liable for mere errors in judgment as to the best course of action to adopt among the alternatives available in any given instance.
- 19.4 The award of more than one contract for the Project requires sequential or otherwise interrelated contractor operations, and will involve inherent coordination in the progress of any individual contractor's work. Accordingly, the Municipality cannot guarantee the unimpeded operations of any contractor. The Contractor acknowledges these conditions, and understands that he or she shall bear the risk of all ordinary delays caused by the presence or operations of other contractors engaged upon the project, and ordinary delays attendant upon any Municipality approved construction schedule. Should a contractor sustain damage through any act or omission of any other contractor, the contractor shall have no claim against the Municipality.
- 19.5 The Municipality shall not be liable for ordinary delays in any case nor for extraordinary

delays that occur due to any contractor's failure to comply with directions of the Municipality or because of the neglect, failure or inability of any contractor to perform his or her work efficiently.

- 19.6 Any claim for extraordinary delay caused by an allegedly unreasonable or arbitrary act, or failure to act, by the Municipal Representative in the exercise of his or her responsibility for supervision and coordination of the Work, shall be waived, released and discharged unless the Contractor whose work is impeded or delayed thereby, shall give notice in writing to the Municipal Representative as promptly as possible and in sufficient time to permit the Municipal Representative to investigate appropriate instructions.
- 19.7 The neglect or refusal of a Contractor to comply with supervisory directions issued by the Municipal Representative pursuant to his or her responsibility for supervision of the Work shall constitute a failure to progress the work diligently in accordance with the Contract requirements and shall justify withholding payments otherwise due, or termination of the Contract as detailed in Article 15.
- 19.8 The Contractor shall indemnify the Municipality for damages recovered against the Municipality by another contractor to the extent that any such claim or judgment is the proximate cause of the Contractor's failure to progress the work in accordance with Contract requirements.

#### ARTICLE 20 – RESPONSIBILITY FOR DAMAGE AND INDEMNIFICATION

- 20.1 The Contractor shall faithfully perform and complete all of the work required by the Contract, and has full responsibility for the following risks:
- (a) Loss or damage, direct or indirect; to the Work including the building or structure in which the Work is being performed, or any other construction in progress, whether being performed by any other contractor or by the Municipality, or to any plant, equipment, tools, materials or property furnished, used, installed, or received by the Municipal Representative under this Contract or any other contract. The Contractor shall bear all such risk of loss or damage, until all of the Work covered by the Contract has been finally accepted. In the event of such loss or damage, the Contractor shall forthwith repair, replace, and make good any such loss or damage without additional costs.
  - (b) Injury to persons (including death resulting therefrom), or damage to property caused by an occurrence arising out of the performance of this Contract for which the Contractor may be liable under any theory of law.
- 20.2 Contractor assumes all risks in the performance of all activities authorized by this Contract and agrees to defend, indemnify and hold harmless the State of New York, GOSR, the Municipality, their officers, employees, agents and assigns (hereinafter, collectively the "Indemnitees") from and against any and all claims, suits, losses, damage or injury to persons or property of whatsoever kind and nature, whether direct or indirect, caused or contributed to by Contractor and Contractor's sub-contractors, vendors, material suppliers, employees, agents, invitees and guests, and/or arising out of Contractor's conduct and/or Contractor's performance pursuant to this Contract, provided however that Contractor's indemnity shall not extend to any claims, liabilities, losses, damages, expenses, accidents or

occurrences arising out of, relating to, or in connection with: (i) the negligence of any Indemnitee; or (ii) the Indemnitees' ordinary upkeep and maintenance of grounds and facilities outside of the Premises. Contractor shall defend at its sole cost and expense any action commenced for the purpose of asserting any claim of whatsoever character arising out of this Contract. Contractor's responsibility under this section shall not be limited to the required or available insurance coverage.

- 20.3 For all purposes hereunder, the Municipality, GOSR and the State shall not be liable for any injury, loss or damage to Contractor, its agents, servants, sub-contractors, vendors, invitees and guests, or to any person happening on, in or about the Premises or its appurtenances, nor for any injury or damage to the Premises or to any property belonging to Contractor or to any other person, that may be caused by fire, theft, breakage, vandalism or any other use or misuse or abuse of any portion of the Premises, including but not limited to any common areas, sidewalks, roads, or water in or adjacent to the Premises, or that may arise from any other cause whatsoever, unless, and only to the extent of the proportion of which any such injury, loss or damage is determined to be caused by the negligence of the Municipality, GOSR or the State, respectively.
- 20.4 The Municipality, GOSR and the State shall not be liable to Contractor, its agents, contractors, vendors, invitees and guests, or any other person, for any failure of water supply, gas supply or electric current, nor for any injury or damage to any property of Contractor or any other person or to the Premises, caused by or resulting from spill or release of gasoline, oil, steam, gas, or electricity, or caused by leakage of any substance from pipes, appliances, sewers or plumbing works, or caused by hurricane, flood, tornado, wind or similar storm or disturbance, or caused by water, rain or snow that may leak or flow from the street, sewers or subsurface areas, or from any part of the Premises or any body of water within or adjacent to the Premises, or caused by any public or quasi-public work, unless, and only to the extent of the proportion by which any such injury, loss or damage is determined to be caused by the negligence of the Municipality, GOSR or the State, respectively.
- 20.5 The Municipality or the State may retain such monies from the amount due the Contractor as may be necessary to satisfy any claim for damages recovered against the Municipality or the State, respectively. The Contractor's obligations under this paragraph shall not be deemed waived by the failure of the Municipality to retain the whole or any part of such monies due the Contractor, nor shall such obligation be deemed limited or discharged by the enumeration or procurement of any insurance for liability for damages imposed by law upon the Contractor, Subcontractor, the Municipality, GOSR or the State.
- 20.6 The Contractor agrees to make no claim for damages in the performance of the Contract occasioned by any act or omission to act of the Municipality or its representatives, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work as provided herein.
- 20.7 The Contractor shall not create or cause to be created any lien, encumbrance or charge upon the Premises, the Municipality or any part thereof. If any mechanics, laborers or similar statutory or common law lien (including tax liens, provided that the underlying tax is an obligation of Contractor by law or by a provision of this Contract) caused or created by Contractor is filed against the Premises, or if any public improvement lien created or caused to be created by Contractor is filed against any assets of, or funds

appropriated by the Municipality, then Contractor shall, within forty-five (45) days after receipt of notice of the lien, cause it to be vacated or discharged of record by payment, deposit, bond, court order, or otherwise. However, Contractor shall not be required to discharge any such lien if Contractor shall have: (i) furnished the Municipality with, at Contractor's option, a cash deposit, bond, letter of credit (from an institutional lender in a form satisfactory to the Municipality), or other security reasonably satisfactory to the Municipality in an amount sufficient to discharge the lien and all applicable interest, penalties and/or costs; and (ii) brought an appropriate legal proceeding to discharge the lien and is prosecuting such proceeding with diligence and continuity; except that if despite Contractor's efforts to discharge the lien the Municipality reasonably believes the lien is about to be foreclosed and so notifies Contractor, Contractor shall immediately cause such lien to be discharged of record or the Municipality may use the security furnished by Contractor in order to discharge the lien.

## ARTICLE 21 - INSURANCE

### 21.1 General Requirements

- (a) Insurance coverage shall be provided only by an insurance carrier rated A-, Class VII or better throughout the term of this Contract. Such carrier shall be duly licensed in the State of New York.
- (b) All insurance policies and certificates shall include the following provision: "Consistent with the requirements of Contract Documents, the State of New York, the State of New York Housing Trust Fund Corporation and the Village of Suffern is an additional insured". Simply designating the State or Municipality as a "certificate holder" shall not constitute compliance with this section.
- (c) All insurance coverage shall be written such that the Municipal Representative is afforded at least thirty (30) days prior notice of cancellation of any insurance. No policy shall be changed by endorsement without the knowledge and consent of the Municipal Representative, and, in particular, any notice of cancellation by the insurer shall not be effective until thirty (30) days after the said notice is actually received by the Municipal Representative. Any notice shall be addressed to the Municipal Representative and shall be mailed via certified or registered mail and copied to the Municipality as set forth in Article 28.2.
- (d) Before commencing the Work, the Contractor shall furnish to the Municipal Representative a certificate or certificates of insurance showing that the Contractor has complied with this clause. In addition, for policies expiring on a fixed date before final acceptance, certificates of insurance showing their renewal must be filed not less than thirty (30) days before such expiration date.
- (e) Contractor shall notify the Municipality of any accidents and/or claims, including without limitation accidents or claims involving bodily injury, death or property damage, arising on or within the Premises. Such notice shall be provided in writing as soon as practicable, however in any event within five (5) days of Contractor's receipt of notice of the accident or claim.

### 21.2 Liability Insurance

- (a) Contractor shall procure and maintain without interruption, at its sole cost and expense, during the term of this Contract (or any extensions thereof) and for a period of two years thereafter, insurance of the type, and with limits and deductibles, as follows:
- i. Commercial General Liability Insurance and Excess Liability Insurance. Providing both bodily injury (including death) and property damage insurance with limits in the aggregate and per occurrence in accordance with the following table:

Construction Contract Value	Commercial General Liability in combination with Excess (Umbrella) Liability	
	Each Occurrence	General Aggregate
< \$10M	\$2,000,000	\$2,000,000
>\$10M - \$50M	\$5,000,000	\$5,000,000
>\$50M	\$10,000,000	\$10,000,000

Such insurance is to be written on an occurrence basis with defense outside of limits. New York State, the New York State Housing Trust Fund Corporation, and the Municipality shall each be named as an additional insured. The minimum required level of insurance may be provided through a combination of commercial general liability and umbrella and/or excess liability policies.

- ii. Automobile Liability and Property Damage Insurance. In an amount not less than One Million Dollars (\$1,000,000) combined single limit for both Bodily Injury and Property Damage.
- iii. Professional Liability. If the Contractor is engaged in providing professional services under this Contract, professional errors and omissions coverage with a limit not less than Two Million Dollars (\$2,000,000) in the aggregate and One Million Dollars (\$1,000,000) per occurrence. If the Contractor is not engaged in providing professional services under this Contract, this professional errors and omissions coverage is not required.
- (b) In addition to the foregoing, Contractor and any subcontractors shall procure and maintain any and all insurance which is required by any applicable current or future law, rule, regulation, ordinance, permit, license, order or other legal requirement.
- (c) All insurance shall be primary and non-contributory and shall waive subrogation against New York State, New York State Housing Trust Fund Corporation and the Municipality and all of either of their former, current, or future officers, directors, and employees. No deductible of more than \$50,000 shall be permitted without advance written approval by the Municipality, which the Municipality may withhold, condition or deny in its sole and exclusive discretion.
- (d) The Contractor shall provide Certificates of Insurance to the Municipality prior to the commencement of work and shall provide full and complete

copies of the actual policies and all endorsements upon request. Subcontractors under this Contract shall be required to maintain insurance meeting all of the requirements set forth in Section (a) above for items (i)-(iii); however Contractor shall require subcontractors to maintain greater limits and/or other or additional insurance coverages if greater limits and/or other or additional insurance coverages are (A) generally imposed by the Contractor given its normal course of business for subcontracts for similar work or services to those being provided by the subcontractor at issue; or (B) reasonable and customary in the industry for similar work or services to those anticipated hereunder.

21.3 Builder's Risk Insurance.

- (a) The Contractor shall maintain builder's risk insurance for the completed value of the Contract on the All Risk Form. Builder's Risk insurance applies only to contracts that involve buildings or structures being constructed, erected or fabricated.
- (b) In case the Municipality shall occupy all or any part of any building or buildings included in the Contract prior to the issuance of the final certificate of occupancy, the Contractor shall notify the fire insurance company or companies. Such occupancy by the Municipality shall not require consent of the insurer nor shall the insurer require any rate adjustment as a result of such occupancy.

21.4 Worker's Compensation. Proof of Compliance with Workers' Compensation Coverage Requirements: An ACORD form is NOT acceptable proof of workers' compensation coverage. Contractor shall provide to the Municipality one of the following forms for itself and any subcontractor prior to award:

**Form CE-200**, Certificate of Attestation for New York Entities with No Employees and Certain Out of State Entities, That New York State Workers' Compensation and/or Disability Benefits Insurance Coverage is Not Required.

**Form C-105.2 (9/07)** if coverage is provided by the contractor's insurance carrier, contractor must request its carrier to send this form to the Municipality, or

**Form U-26.3** if coverage is provided by the State Insurance Fund, contractor must request this be sent to the Municipality

**Form SI-12** Certificate of Workers' Compensation Self-Insurance

**Form GSI-105.2** Certificate of Participation in Workers' Compensation Group Self Insurance

In accordance with New York General Municipal Law § 108, this Contract shall be void and of no effect unless the Contractor secures compensation for the benefit of, and keeps insured during the life of the Contract, employees engaged on the Project, in compliance with the provisions of the New York Workers' Compensation law.

21.5 Disability Benefits. Proof of Compliance with Disability Benefits Coverage Requirements: An ACORD is NOT acceptable proof of disability benefits coverage. Contractor shall provide to the Municipality one of the following forms for itself and any subcontractor prior to award:

**Form CE-200**, Certificate of Attestation for New York Entities with No Employees and Certain Out of State Entities, That New York State Workers' Compensation and/or Disability Benefits Insurance Coverage is Not Required.

**Form DB-120.1**, Certificate of Disability Benefits Insurance

**Form DB-155**, Certificate of Disability Benefits Self Insurance

## ARTICLE 22 - OCCUPANCY PRIOR TO COMPLETION AND ACCEPTANCE

22.1 The Municipality shall have the right to take possession of or use any completed or partially completed portion of the Work. Written notice of such possession shall be given to the Contractor by the Municipal Representative. The notice shall identify the date when such possession shall commence and the area, equipment or system involved. Written notice shall also be given to the Contractor for any cessation of such possession by the Municipality. Such possession or use shall not be deemed an acceptance of any Work. While the Municipality is in such possession, the Contractor, notwithstanding the provisions of Article 20 of the Contract, shall be relieved of the responsibility for the risk of loss or damage to the Work except for that resulting from the Contractor's fault or negligence. If such possession or use by the Municipality delays the progress of the Work or causes additional expense to the Contractor, an adjustment in the Contract price and/or the time of completion shall be made and the Contract modified in writing accordingly. The provisions relating to an adjustment in the Contract price or the time of completion contained in this paragraph shall not apply to occupancy or possession after Substantial Completion.

## ARTICLE 23 – PAYMENT

- 23.1 The Contractor may submit monthly payment applications, or more frequently if permitted by making a request in writing to the Municipal Representative, a requisition for a progress payment for Work performed and materials furnished to the date of the requisition, less any amount previously paid to the Contractor. Except as otherwise provided by this Contract, the Municipality shall approve and pay the requisition for the progress payment less an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged and less any amount authorized by law or Contract to be retained. The requisition shall be in such form and supported by such evidence and backup documentation as the Municipal Representative may require.
- 23.2 The Contractor agrees that, if the Contract Documents for this Contract includes Performance and Payment Bonds, the Municipality shall retain five percent (5%) of the amount of each progress payment in accordance with Section 139-f of the State Finance Law. The Contractor further agrees that, if the Contract Documents for this Contract do not include Performance and Payment Bonds, the Municipality shall retain ten percent (10%) of the amount of each progress payment in accordance with Section 139-f of the State Finance Law.
- 23.3 All requisitions for payments shall be submitted to the Municipal Representative. The Municipal Representative shall notify the Contractor of any defect in any requisition within twenty (20) days of the receipt of such requisition and shall complete the review and

- audit of each complete requisition within forty-five (45) days of receipt thereof.
- 23.4 The Municipality may refuse to approve the requisition or a portion thereof if in the Municipal Representative's or Municipality's judgment the Contractor is failing or refusing to prosecute the Work in accordance with the Contract.
- 23.5 Payment may be made for approved materials not yet incorporated in the Work in accordance with the Schedule of Values and Section 139(f) of the State Finance Law. Requisitions, which require payment for materials, shall be accompanied by a notarized statement certifying that the materials for which payment is requisitioned are the Contractor's property and have been suitably stored and insured. The Contractor shall provide such evidence of the value of the material stored as the Municipal Representative may reasonably require. The Contractor shall have full continuing responsibility to insure and protect such materials and maintain them in proper condition to fulfill Contract requirements when installed.
- 23.6 When the Work is substantially completed, the Contractor shall submit to the Municipal Representative a requisition for payment of the remaining amount of the Contract balance. Upon receipt of such requisition the Municipality shall, except as otherwise provided by this Contract, approve and pay the remaining amount of the Contract balance less two times the value of any remaining items to be completed and an amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. As the remaining items of Work are satisfactorily completed or corrected, the Municipality shall approve, upon receipt of a requisition, for these remaining items less an amount necessary to satisfy any claims, liens or judgments against the Contractor, which have not been suitably discharged.
- 23.7 The final payment will not be issued until all the labor and material required by the Contract has been furnished and completed, all disputes relating to the performance of the Contract considered and disposed of and all accounts for extra work and materials and allowances for omissions have been rendered and considered.
- 23.8 The final payment will constitute the acceptance of the Work by the Municipality except as to Work thereafter found to be defective. The date of such certificate shall be regarded as the date of acceptance of the Work.
- 23.9 No payment will be made to a foreign Contractor until the Contractor furnishes satisfactory proof that he or she has paid all taxes required of foreign Contractors under the provisions of the Tax Law. A foreign Contractor as used in this paragraph shall mean a Contractor denominated "foreign" by the Tax Law.
- 23.10 Acceptance by the Contractor, or by anyone claiming by or through him or her, of the final payment shall constitute and operate as a release to the Municipality from any and all claims of any liability to the Contractor for anything theretofore done or furnished for or relating to or arising out of the work done thereunder, and for any prior act, neglect, or default on the part of the Municipality or any of its officers, agents, or employees unless the Contractor serves a detailed and verified statement of claim upon the Municipality not later than forty (40) days after the mailing of such final payment. Such statement shall specify the items and details upon which the claim will be based and any such claim shall be limited to such items. Should the Contractor refuse to accept the final payment as tendered by the Municipality, it shall constitute a waiver of any right to interest thereon.

- 23.11 The Contractor is advised that consistent with Subdivision 3-a, of Section 220 of the Labor Law, the filing of certified payroll records is a condition precedent to payment of any sums due and owing to any person performing work on this project. The failure to file pursuant to this section will result in a payment delay until the filing occurs.
- 23.12 The Contractor acknowledges that it shall not receive payment on any requests for payment unless the Contractor complies with the Municipality's electronic payment deposit procedures. Payments requested by the Contractor shall only be facilitated via electronic deposit, except where the Municipality has expressly authorized payment by paper check

#### ARTICLE 24 – AUDITS AND RECORDS

- 24.1 The Contractor shall maintain on the Site the original certified payrolls or certified transcripts thereof, subscribed and affirmed by the Contractor and all Subcontractors as true under the penalties of perjury, showing the hours and days worked by each worker, laborer or mechanic, the occupation at which he or she worked, the hourly wage rate paid and the supplements paid or provided. The Contractor shall maintain with the payrolls or transcripts thereof, the statements signed by each worker pursuant to Article 25 of the General Conditions.
- 24.2 The Municipality, GOSR, the Comptroller and their representatives who are employees of the State shall have the right to examine all books, records, documents, and other data of the Contractor, any Subcontractor, materialmen or suppliers relating to the bidding, pricing or performance of this Contract or any change or modification thereto for the purpose of evaluating the accuracy, completeness, and currency of the cost or pricing data submitted. This right of examination shall extend to all documents necessary to permit adequate evaluation of the cost or pricing data submitted along with the computations and projections used therein.
- 24.3 The above materials shall be made available at the office of the Contractor, Subcontractors, materialmen or suppliers at all reasonable times for inspection, audit or reproduction until the expiration of six (6) years from the date of the final certificate for the Contract.
- 24.4 If this Contract is completely or partially terminated, the records relating to the Work terminated shall be made available for a period of six (6) years from the date of any resulting final settlement.
- 24.5 Records that relate to the Disputes Clause of this Contract or litigation or the settlement of claims arising out of the performance of this Contract shall be made available until the disposal of such appeals, litigation or claims.
- 24.6 The Contractor shall insert a clause containing all of the provisions of Article 24 in all subcontracts or purchase orders issued hereunder.
- 24.7 The Contractor shall make available to the Municipality, upon written request, all records required to be kept by Article 3-A of the Lien Law. The failure to provide said records upon the receipt of the written request shall bar any recovery for claimed extra or additional costs under this Contract.

#### ARTICLE 25 – LABOR LAW AND PREVAILING WAGES NOTIFICATIONS PROVISIONS

- 25.1 In addition to any other provisions of this Contract in relation to prevailing wage rates, the Contractor shall be responsible for notifications mandated by law, rule or regulation.
- 25.2 The Contractor shall post, in a location designated by the Municipality, a copy of the New York State Department of Labor schedules of prevailing wages and supplements for this Project, a copy of all re-determinations of such schedules for the Project, all other notices required by law to be posted at the Site, the Department of Labor notice that this Project is a public work project on which each worker is entitled to receive the prevailing wages and supplements for the occupation at which he or she is working, and all other notices which the Municipality directs the Contractor to post. The Contractor shall provide a surface for such notices, which is satisfactory to the Municipality. The Contractor shall maintain such notices in a legible manner and shall replace any notice or schedule that is damaged, defaced, illegible or removed for any reason. The Contractor shall post such notices before commencing any Work on the Site and shall maintain such notices until all Work on the Site is complete.
- 25.3 The Contractor shall distribute to each worker for this Contract a notice, in a form provided by the Municipality, that this project is a public work project on which each worker is entitled to receive the prevailing wage and supplements for the occupation at which he or she is working. Worker includes employees of Contractor and all Subcontractors and all employees of suppliers entering the Site. Such notice shall be distributed to each worker in accordance with Labor Law 220 3-a.
- 25.4 In addition to the requirements of Appendix A, the Contractor is responsible for any additional costs related to new determinations of the wage rates. The annual determination of the prevailing rates of wages and supplements are usually published on May 31<sup>st</sup> of each year and are in effect July 1<sup>st</sup> through June 30<sup>th</sup>. New determinations shall supersede the original schedule or any prior issued annual determination. Any rate change from a previously issued determination becomes effective July 1<sup>st</sup>, regardless of whether the new determination has been received by the Contractor.
- 25.5 If this Agreement and all other agreements for this project exceed \$250,000.00, all workers must complete a ten-hour or more OSHA-approved construction safety and health course.
- 25.6 No worker, in the employ of the Contractor, all Subcontractors or other person doing or contracting to do the whole or any part of the Work contemplated by the Contract shall be permitted or required to work more than eight (8) hours in any one (1) calendar day and more than five (5) days in any one week, except in the extraordinary emergencies set forth in the Labor Law.
- 25.7 Pursuant to Labor Law, Section 220-e, the Contractor specifically agrees:
- a. That in the hiring of employees for the performance of Work under the Contract or any subcontract hereunder, or for the manufacture, sale or distribution of materials, equipment or supplies hereunder, but limited to operation performed within the territorial limits of the State of New York, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the Work to which the employment relates.

- b. That no Contractor, Subcontractor, nor any person on behalf of such Contractor or Subcontractor shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under the Contract on account of race, creed, color, disability, sex or national origin.

ARTICLE 26 - STATUTORY REQUIREMENTS FOR RESTRICTIONS ON CONTACTS DURING THE PROCUREMENT PROCESS AND DISCLOSURE OF CONTACTS AND RESPONSIBILITY OF OFFERERS MISCELLANEOUS PROVISIONS

26.1 New York State Finance Law §139-k requires that every procurement contract award subject to the provisions of State Finance Law §139-k or §139-j shall contain a certification by the Offerer that all information provided to the procuring governmental agency with respect to State Finance Law §139-k is complete, true and accurate. The Contractor shall provide that certification in his or her contract or agreement.

26.2 New York State Finance Law

26.2.1 New York State Finance Law § 139-k(2) requires the Municipality to obtain specific information regarding prior non-responsibility determinations. This information must be collected in addition to the information that is separately obtained pursuant to State Finance Law § 163 (9). In accordance with State Finance Law § 139-k, an Offerer must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any Governmental Entity due to: (a) a violation of State Finance Law § 139-j or (b) the intentional provision of false or incomplete information to a Governmental Entity.

26.2.2 As part of its responsibility determination, State Finance Law § 139-k(3) mandates consideration of whether an Offerer fails to timely disclose or complete information regarding the above non-responsibility determination. In accordance with law, no procurement contract shall be awarded to any Offerer that fails to timely disclose accurate or complete information under this section, unless a finding is made that the award of a procurement contract to the Offerer is necessary to protect public property or public health safety, and that the Offerer is the only source capable of performing the required Work within the necessary timeframe. The required forms to be completed by the Offerer must be submitted to the Municipality.

ARTICLE 27 – NO ASSIGNMENT

27.1 In accordance with the provisions of Section 109 of the General Municipal Law, the Contractor is hereby prohibited from assigning, transferring, conveying, subletting or otherwise disposing of this Agreement, or of its right, title or interest in this Agreement, or its power to execute this Agreement, to any other person or corporation without the previous consent in writing of the Municipality.

ARTICLE 28 – MISCELLANEOUS PROVISIONS

28.1 Commencement of Actions: The time, as prescribed by law, within which an action on the contract against the Contractor must be commenced shall be computed from the date of completion of physical work. The Contractor shall notify the Municipality in writing that the physical work of the contract has been completed by specifying a completion date, which date shall be no more than thirty (30) days prior to the date of such notice. The completion date set forth in such notice shall be deemed the date of completion of the physical work unless the Municipality, within thirty (30) days of receipt of such notice, notifies the Contractor of a dispute in writing. Any notice pursuant to this paragraph shall be sent by the Contractor by Certified Mail and sent to the parties set forth in the Notice provision of this Article.

28.1.1 In the event that the Contractor fails to provide notice as set forth herein or the Municipality disputes the completion date in the manner provided for herein, the date of completion of the physical work shall be determined in any other manner provided by law.

28.1.2 Choice of Law/Damages: This Contract shall be governed and interpreted in accordance with the laws of the State of New York. Any and all claims against the State, the Municipality, the Municipal Representative, employees, officers or agents arising out of this Contract shall be limited to money damages and commenced exclusively in, and subject to the jurisdiction of the New York State Court of Claims or any other court of competent jurisdiction located in Albany County, New York. Any such claim shall not be removed to federal court.

## 28.2 Notice

- (a) Unless otherwise indicated in these General Conditions, all notices permitted or required hereunder shall be in writing and shall be transmitted either:
- i. via certified or registered United States mail, return receipt requested;
  - ii. by facsimile transmission;
  - iii. by personal delivery;
  - iv. by expedited delivery service; or
  - v. by e-mail.

Such notices shall be addressed as follows or to such different addresses as the parties may from time-to-time designate:

If to the Municipality:

Village of Suffern  
61 Washington Avenue, Suffern, NY 10901  
Phone (845) 357-2602  
Fax: (845) 357-0649  
E-Mail Address: csawicki@suffernny.gov

- (b) Any such notice shall be deemed to have been given either at the time of personal delivery or, in the case of expedited delivery service or certified or registered United States mail, as of the date of first attempted delivery at the address and in

the manner provided herein, or in the case of facsimile transmission or email, upon receipt.

- (c) The parties may, from time to time, specify any new or different address in the United States as their address for purpose of receiving notice under this Contract by giving fifteen (15) days written notice to the other party sent in accordance herewith. The parties agree to mutually designate individuals as their respective representatives for the purposes of receiving notices under this Contract. Additional individuals may be designated in writing by the parties for purposes of implementation and administration/billing, resolving issues and problems and/or for dispute resolution.

28.3 Severability: If any provision, term or condition of this contract is held to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality or enforceability of any other part of this Contract and the remaining parts of this Contract shall be enforced as if the invalid, illegal or unenforceable provisions, terms or conditions are not contained herein.

28.4 Integration Clause: This Contract shall not be materially amended, changed or otherwise modified except in writing signed by both parties. Except to the extent that documents are incorporated herein by reference, this Contract constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes all prior agreements and understandings of the parties in connection therewith. No covenant, representation or condition not expressed herein shall be effective to interpret, change or restrict the express provisions of this Contract.

28.5 Signage: All construction sites must include a sign including all of the items required by applicable law, rule or regulation. All construction signs must also include the name of the project, the name of the Municipality, and a phone number for the public to call to obtain information about the project. This phone number will be maintained by the Municipality.

## APPENDICES

29.1 The following appendices are attached hereto and hereby made a part of this agreement as if set forth fully herein:

- (a) Appendix A, Supplementary Conditions for Contracts (Exhibit E);
- (b) Appendix B, Supplemental Instructions to Bidders for Participation by MWBE
- (c) Appendix C, Federal Labor Standards Provision



# **Construction General Requirements**

# **GENERAL REQUIREMENTS for CONSTRUCTION**

## **TABLE OF CONTENTS**

### **DIVISION 01 – GENERAL REQUIREMENTS**

SECTION 011200 – CONTRACT SUMMARY OF WORK

SECTION 012100 – ALLOWANCES

SECTION 012300 – ALTERNATES

SECTION 012900 – PAYMENT PROCEDURES  
PAYMENT SCHEDULE OF VALUES

SECTION 013100 – PROJECT MANAGEMENT AND COORDINATION

SECTION 013200 - PROJECT SCHEDULING AND PROGRESS  
DOCUMENTATION - SINGLE PRIME CONTRACT

SECTION 013300 – SUBMITTAL PROCEDURE  
SUBMITTAL LIST

SECTION 014000 – QUALITY AND CODE REQUIREMENTS

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

SECTION 016000 – PRODUCT REQUIREMENTS

SECTION 017329 – CUTTING AND PATCHING

SECTION 017700 – CONTRACT CLOSEOUT REQUIREMENTS

SECTION 017823 – OPERATION AND MAINTENANCE MANUALS

SECTION 017839 – AS BUILT DOCUMENTS

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 011200 - CONTRACT SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes a summary of each Contract for the Project, including responsibilities for coordination and temporary facilities and controls. The project will be a single Prime Electrical contract. Electrical Prime Contractor will subcontract non-electrical work not performed by them to include the General Construction work and Plumbing work.
- B. Specific requirements for the work of each Contract are also indicated in individual Specification Sections and on Drawings for each Contract.
- C. Comply with the site specific Project Safety Plans, for Work Hours and other Safety requirements.
- D. Related Sections:
  - 1. Section 012100 – Allowances.
  - 2. Section 012300 – Alternates.
  - 3. Section 013100 - Project Management and Coordination.
  - 4. Section 013200 - Construction Progress Documentation.
  - 5. Section 015000 - Temporary Facilities and Controls.

#### 1.3 CONTRACTOR'S PROJECT MANAGER

- A. Contractor and each Sub-contractor shall identify a project manager who shall be responsible for coordination between and among each and all contractors and subcontractors for the Project and the Owner.

#### 1.4 COORDINATION ACTIVITIES

- A. Coordination activities of Contractor's project manager include, but are not limited to, the following:
  - 1. Provide overall coordination of the Work.
  - 2. Provide overall coordination of temporary facilities and controls.
  - 3. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary and permanent services.
  - 4. Prepare Coordinated Composite Drawings, in collaboration with each contractor and sub-contractor for the Project, to coordinate the work of the contract for the Project.

## GENERAL REQUIREMENTS for CONSTRUCTION

5. Coordinate sequencing and scheduling of the Work. Include the following:
    - a. Initial Coordination Meeting: At earliest possible date, the Owner will arrange and conduct a meeting with all contractors for the Project for sequencing and coordinating the work of the Project.
  6. Provide quality assurance and quality control services specified in Section 014000 – Quality and Code Requirements.
  7. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
  8. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
  9. Provide progress cleaning of all Contract work areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
  10. Coordinate cutting and patching.
  11. Coordinate protection of the Work.
  12. Coordinate firestopping.
  13. Coordinate completion of punch list items.
  14. Coordinate preparation of As-built drawings and specifications.
  15. Print and submit all required project turnover documents.
  16. Coordinate preparation of operation and maintenance manuals.
- B. Responsibilities of project manager for construction contract includes coordination for temporary facilities and controls.

### 1.5 GENERAL REQUIREMENTS OF CONTRACTS

- A. Extent of Contract: Requirements indicated on drawings and in specification sections determine which Contract includes a specific element of the Work of the Contract.
1. The work described in this section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the respective contract documents.
  2. Trenches and other excavation for the work of each contract shall be the work of such contract.
  3. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of such Contract.
  4. Equipment pads for the work of each contract shall be the work of such contract.
  5. Painting for the work of each contract shall be the work of such contract.
  6. Cutting and Patching: Each contract shall perform its own cutting and patching.
  7. Firestopping for the work of each contract shall be provided by such contract
- B. Redundant with Section 13200 Substitutions: Each contractor's project manager shall cooperate with all other contractor's project managers involved to coordinate approved substitutions with remainder of the work of the Project.

## GENERAL REQUIREMENTS for CONSTRUCTION

- C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015000 - Temporary Facilities and Controls, Contractor is responsible for the following:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section 011200.
  2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
  3. Its own field office complete with necessary furniture, utilities, and telephone service.
  4. Its own storage and fabrication sheds.
  5. Temporary enclosures for its own construction activities.
  6. Staging for its own construction activities.
  7. General hoisting facilities for its own construction activities.
  8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
  9. Progress cleaning of work areas affected by its operations on a daily basis.
  10. Secure lockup of its own tools, materials, and equipment.
  11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

### 1.6 GENERAL CONSTRUCTION WORK

- A. Work in the General Construction Work includes, but is not limited to, the following:
1. Remaining work not identified as work under other contracts.
  2. Site preparation, including clearing, relocations and earthwork.
  3. Selective demolition.
  4. Slabs-on-grade, including earthwork.
  5. Below-grade construction, including excavation, backfill, site and surface restoration.
- B. Temporary facilities and controls in the General Construction Work include, but are not limited to, the following:
1. Temporary facilities and controls that are not otherwise specifically assigned to other contracts.
  2. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.
  3. Excavation support and protection for the Work of the contract.
  4. Project identification and temporary signs.
  5. Barricades, warning signs, and lights.
  6. Site enclosure fence.
  7. Restoration of Owner's existing facilities used as temporary facilities.

### 1.7 ELECTRICAL CONTRACT

- A. Work in the Electrical Contract includes, but is not limited to, the following:
1. Site electrical distribution.
  2. Electrical service and distribution.

## GENERAL REQUIREMENTS for CONSTRUCTION

3. Special electrical systems, including the following:
    - a. Packaged engine generator systems and automatic transfer switches.
  4. Electrical connections to equipment furnished by this contract.
- B. Temporary facilities and controls in the Electrical Contract include, but are not limited to, the following:
1. Electric power service and distribution.
  2. Temporary Protection and barrier of construction areas, including excavated areas.

### 1.8 PLUMBING WORK

- A. Work in the Plumbing Work includes, but is not limited to, the following:
1. Site special plumbing systems.
  2. Special plumbing systems, including the following:
    - a. Natural gas piping and accessories.
    - b. Plumbing connections to equipment furnished by electrical contract.
  3. Plumbing connections to equipment furnished by all other contracts.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011200

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 012100 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, Notice to Proceed and Allowance Allocation Form apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor.
- B. Types of allowances include the following:
  - 1. Procurement Exemption (Lump-sum) allowances.
- C. Related Sections:
  - 1. General Conditions, Article 7 – Changes in the Work.
  - 2. General Conditions, Article 8 – Payment.
  - 3. Section 012900 – Payment Procedures.
  - 4. Section 013300 – Submittal Procedure.
  - 5. Individual Specification Sections for items of Work covered by allowances.

#### 1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Owner of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At the Owner's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Owner's Representative from the designated supplier.

#### 1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

### 1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.
- B. The Contractor shall include the dollar value of each scheduled allowance number as a separate line item in the Schedule of Values and identify each allowance with Section number 012100.
- C. The Owner shall provide the Contractor with the Notice to Proceed, and request the Contractor to sign an Allowance Allocation form, prior to proceeding with the Work of an allowance.

### 1.6 PAYMENT

- A. The Contractor shall include a copy of the approved Allowance Allocation form issued by the Owner, with the Application for Payment, for payment of lump sum or unit cost allowance work.
- B. The Contractor shall complete and provide an Allowance Allocation form, provided by the Owner, and supporting documentation in accordance with General Conditions, Article 7 – Changes in the Work for payment of a contingency allowance.

### 1.7 NOT USED

### 1.8 QUANTITY OF FUNDS [CONTINGENCY] ALLOWANCES

- A. Use the quantity of funds [contingency] allowance only as directed by the Owner for the Owner's purposes and only by Change Orders in accordance with General Conditions, Article 7 – Changes in the Work that indicate amounts to be charged to the allowance.
- B. The Contractor's overhead, profit, and related costs for products and equipment ordered by the Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and overhead and profit margins.

## GENERAL REQUIREMENTS for CONSTRUCTION

- D. At Project closeout, the unused amounts remaining in the contingency allowance shall be credited to the Owner by Change Order.

### 1.9 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts and scope of Work, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. The Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
  5. No change to the Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

#### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

#### 3.3 SCHEDULE OF ALLOWANCES

Not used

END OF SECTION 012100

ALLOWANCES

012100 - 3

July '13

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

#### 1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Documents that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. Alternates described in this Section are part of the Work only if enumerated in the Contract.
  - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other Work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

GENERAL REQUIREMENTS for CONSTRUCTION

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Bid Alternate No. 1: Village Hall Generator Replacement, Village of Suffern, Suffern, NY.
  - 1. Base Bid: GOSR Program, Generator Replacement, One Location at Village of Suffern, Suffern, NY.
    - a. DPW Garage, Village of Suffern, Suffern, NY.
  - 2. Alternate: Village Hall Generator Replacement, Village of Suffern, Suffern, NY.

END OF SECTION 012300

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 012900 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, Schedule of Values, Contractor Pencil Copy and Application for Payment, apply to this Section.

#### 1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:  
Not used

#### 1.3 DEFINITIONS

- A. Schedule of Values: A form in the Contract Documents, which establishes minimum level of payment detail to formulate an initial Application for Payment.
- B. Application for Payment: A form provided by the Owner, which provides certification by the Contractor for payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with the Owner.
- B. The Contractor shall allocate portions of the Contract Sum to labor, material and major equipment costs to various portions of the Work as indicated on the form.
  - 1. Submit the Schedule of Values to the Owner, for approval at earliest possible date after award of the Contract.

## GENERAL REQUIREMENTS for CONSTRUCTION

2. The Owner shall not approve any billing request until the Schedule of Values is approved.
- C. Format and Content: Use model form provided in Contract Documents as a guide to establish line items for the Schedule of Values.
1. Arrange the Schedule of Values with separate columns to indicate the following for each item listed:
    - a. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
      - 1) Labor.
      - 2) Materials.
      - 3) Major Equipment.
  2. Provide a breakdown of Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
    - a. Include separate line items under Contractor and principal subcontracts for LEED documentation, if applicable and other project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
  3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  4. Allowances: If applicable, provide a separate line item in the schedule of values for each allowance.
  5. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item, except Lump Sum and Quantity of Work Allowances.
  6. Schedule of Values Updating: The Owner may require the Contractor to revise its Schedule of Values. Further, the Owner reserves the right to accept only those cost distributions which, in the Owner's opinion, are reasonable, equitably balanced and correspond to estimated quantities in Contract Documents.

### 1.5 MONTHLY APPLICATIONS FOR PAYMENT

See other sections

GENERAL REQUIREMENTS for CONSTRUCTION

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

# SCHEDULE OF VALUES

Date: \_\_\_\_\_

Project No: \_\_\_\_\_  
 Project: VILLAGE HALL AND DPW GARAGE  
 Contractor: \_\_\_\_\_

Contract No: GENERATOR REPLACEMENT

CR No: \_\_\_\_\_  
 Trade: \_\_\_\_\_

CSI	DESCRIPTION	UM	QTY	LABOR	MATERIAL	SCHEDULED VALUE
011200	Bonding	LS				\$ -
011200	Insurance	LS				\$ -
011200	Mobilization	LS				\$ -
011200	Demobilization	LS				\$ -
012100	Allowances - Gas Utility Company Charges	LS				\$ 15,000.00
013100	Project Meetings	LS				\$ -
013300	Submittals	LS				\$ -
014000	Testing	LS				\$ -
017700	Project Closeout	LS				\$ -
017823	Training	LS				\$ -
017839	As-Builts	LS				\$ -
						\$ -
	<b>DPW Garage</b>					\$ -
024116	Selective Demolition and Removal	LS				\$ -
033000	Concrete Pad for Generator	CY				\$ -
033000	Bollards with concrete foundation	EA				\$ -
078400	Firestopping	LS				\$ -
099110	Painting	LS				\$ -
221123	Natural Gas Pipe - Above Ground Sch 40 black iron pipe	LF				\$ -
221123	Natural Gas Pipe - HDPE underground pipe	LF				\$ -
221123	Natural Gas Pipe Accessories	LS				\$ -
260100	Miscellaneous	LS				\$ -
260519	# 4/0 Type THWN-2 Conductor	LF				\$ -
260519	# 6 Type THWN-2 Conductor	LF				\$ -
260519	# 8 Type THWN-2 Conductor	LF				\$ -
260519	# 10 Type THWN-2 Conductor	LF				\$ -
260519	# 12 Type THWN-2 Conductor	LF				\$ -
260526	Ground Conductor	EA				\$ -
260526	Generator Grounding with Two Ground Rods	EA				\$ -
260533	2-1/2" RGS Conduit for Outdoor Above Ground Feeders	LF				\$ -
260533	1" RGS Conduit for Outdoor Above Ground Feeders	LF				\$ -
260543	2-1/2" Sch 80 PVC Conduit	LF				\$ -
260543	1" Sch 80 PVC Conduit	LF				\$ -
260543	PVC to 2-1/2" RGS Conduit Coupling & Elbow, 90 Deg.	EA				\$ -
260543	PVC to 1" RGS Conduit Coupling & Elbow, 90 Deg.	EA				\$ -

CSI	DESCRIPTION	UM	QTY	LABOR	MATERIAL	SCHEDULED VALUE
262416	400A Panelboard w/ main Circuit Breaker	EA				\$ -
262416	125A, 3P Circuit Breaker	EA				\$ -
262416	100A, 3P Circuit Breaker	EA				\$ -
262416	40A, 3P Circuit Breaker	EA				\$ -
262416	20A, 1P Circuit Breaker	EA				\$ -
263213	Standby Generator with Enclosure & Tank - 50 KW, 208/120V	EA				\$ -
263213	Generator Main Line Circuit Breaker (208V, 3-Pole, 225A)	EA				\$ -
263600	ATS with Service Disconnect (208V, 3-Pole, 225A)	EA				\$ -
312220	Trenching, Excavation and Backfilling	CY				\$ -
312220	Site Restoration	SF				\$ -
312220	Fabric & Crushed Stone Bed for Generator Pad	CY				\$ -
	<b><u>Bid Alternate No. 1</u></b>					
	<b>Village Hall</b>					
024116	Selective Demolition and Removal	LS				\$ -
033000	Concrete Pad for Generator	CY				\$ -
033000	Bollards with concrete foundation	EA				\$ -
037310	Masonry and Concrete Repair	LS				\$ -
078400	Firestopping	LS				\$ -
099110	Painting	LS				\$ -
221123	Natural Gas Pipe - Above Ground Sch 40 black iron pipe	LF				\$ -
221123	Natural Gas Pipe - HDPE underground pipe	LF				\$ -
221123	Natural Gas Pipe Accessories	LS				\$ -
260100	Miscellaneous	LS				\$ -
260519	# 600 kCMIL Type THWN-2 Conductor	LF				\$ -
260519	# 350 kCMIL Type THWN-2 Conductor	LF				\$ -
260519	# 4/0 Type THWN-2 Conductor	LF				\$ -
260519	# 2 Type THWN-2 Conductor	LF				\$ -
260519	# 4 Type THWN-2 Conductor	LF				\$ -
260519	# 8 Type THWN-2 Conductor	LF				\$ -
260519	# 10 Type THWN-2 Conductor	LF				\$ -
260519	# 12 Type THWN-2 Conductor	LF				\$ -
260526	Ground Conductor	EA				\$ -
260526	Generator Grounding with Two Ground Rods	EA				\$ -
260533	4" EMT Conduit	LF				\$ -
260533	3" EMT Conduit	LF				\$ -
260533	2-1/2" EMT Conduit	LF				\$ -
260533	1" EMT Conduit	LF				\$ -
260533	3/4" EMT Conduit	LF				\$ -
260533	4" RGS Conduit for Outdoor Above Ground Feeders	LF				\$ -
260533	1" RGS Conduit for Outdoor Above Ground Feeders	LF				\$ -
260543	4" Sch 80 PVC Conduit	LF				\$ -
260543	1" Sch 80 PVC Conduit	LF				\$ -
260543	PVC to 4" RGS Conduit Coupling & Elbow, 90 Deg.	EA				\$ -

CSI	DESCRIPTION	UM	QTY	LABOR	MATERIAL	SCHEDULED VALUE				
260543	PVC to 1" RGS Conduit Coupling & Elbow, 90 Deg.	EA				\$ -				
260553	Identification For Electrical Systems	LS				\$ -				
262416	Panelboards	EA				\$ -				
262816	Enclosed Circuit Breaker - 208V, 3-P, 800A	EA				\$ -				
263213	Standby Generator with Enclosure - 175 KW, 208/120V	EA				\$ -				
263213	Generator Main Line Circuit Breaker (208V, 3-Pole, 800A)	EA				\$ -				
263600	ATS non Service rated (208V, 3-Pole, 1000A)	EA				\$ -				
312220	Trenching, Excavation and Backfilling	CY				\$ -				
312220	Site Restoration	SF				\$ -				
312220	Fabric & Crushed Stone Bed for Generator Pad	CY				\$ -				
313113	Chain Link Fences and Gates	LF				\$ -				
				<b>Total:</b>	\$	-	\$	-	\$	<b>15,000.00</b>

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Specification Sections and Contract Manager, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
  - 1. General project coordination procedures.
  - 2. Administrative and supervisory personnel.
  - 3. Coordination drawings.
  - 4. Requests for Information (RFIs).
  - 5. Contract Manager software site.
  - 6. Project meetings.
- B. Each contractor shall participate in coordination requirements. Refer to Section 011200 – Contract Summary of Work for certain areas of responsibility that are assigned to a specific contractor.
- C. Related Sections:
  - 1. Section 011200 - Contract Summary of Work, for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
  - 2. Section 013200 - Project Scheduling and Progress Documentation, for preparing and submitting Contractor's construction schedule.
  - 3. Section 017700 – Contract Closeout Requirements, for coordinating closeout of the Contract.

#### 1.3 DEFINITIONS

- A. RFI: Request from the Owner, Design Professional, or Contractor seeking information from each other during construction.

#### 1.4 COORDINATION

- A. Coordination for Single Contract Project: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

## GENERAL REQUIREMENTS for CONSTRUCTION

1. The Contractor shall utilize the bid milestone schedule included in the Contract Documents to prepare a CPM schedule in accordance with Section 013200 – Project Scheduling and Progress Documentation. The Contractor shall submit the proposed CPM schedule to the Owner within 45 days of the Notice to Proceed.
  2. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  3. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  4. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Coordination of the Owner's P6 Project Management CPM schedule.
  2. Coordination of the commissioning process and activities.
  3. Preparation of the schedule of values.
  4. Entering dates each required submission item listed on the Contractor's Submission Schedule will be submitted, coordinated with the CPM Schedule.
  5. Installation and removal of temporary facilities and controls.
  6. Delivery and processing of submittals.
  7. Progress meetings.
  8. Preinstallation conferences.
  9. Project closeout activities.
  10. Startup and adjustment of systems.
- C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

### 1.5 COORDINATED COMPOSITE DRAWINGS

- A. Coordinated Composite Drawings, General: Prepare coordinated composite drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordinated composite drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable Drawings as a basis for preparation of coordinated composite drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    - b. Coordinate the addition of trade-specific information to the coordinated composite drawings by multiple contractors in a sequence that best provides for coordination

## GENERAL REQUIREMENTS for CONSTRUCTION

of the information and resolution of conflicts between installed components before submitting for review.

- c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls, including space required opening the access door.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to the Owner's Representative indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

### B. Coordinated Composite Drawing Organization: Organize drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on the Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordinated composite drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:
  - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
  - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
  - c. Fire-rated enclosures around ductwork.
7. Electrical Work: Show the following:
  - a. Runs of vertical and horizontal conduit 1-1/4 inch diameter and larger.
  - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm locations.
  - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
  - d. Location of pull boxes and junction boxes dimensioned from column center lines.
8. Fire Protection System: Show the following:

## GENERAL REQUIREMENTS for CONSTRUCTION

- a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
  9. Review: The Owner's Representative will review coordinated composite drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Owner's Representative determines that the coordinated composite drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Owner's Representative will so inform the Contractor, who shall make changes as directed and resubmit.
- C. Coordination Digital Data Files: Prepare coordination digital data files in accordance with the following requirements:
1. File Preparation Format: The Contractor shall coordinate with the Owner's Representative and use the same digital data software program, version, and operating system as the original Drawings.

### 1.6 KEY PERSONNEL

- A. Key Personnel Names: Within 15 days after receipt of the Notice to Proceed, submit a list of key personnel assignments with resume and job qualifications, including project manager, project scheduler, commissioning agent, superintendent and other personnel in attendance at the Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers, and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to the Project.

### 1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, the Contractor shall prepare and submit an RFI in the form specified.
1. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Owner's Representative.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.

## GENERAL REQUIREMENTS for CONSTRUCTION

11. Contractor's suggested resolution. If Contractor's solution(s) impacts the date of Substantial Completion or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: The Owner's Contract Manager-generated form with substantially the same content as indicated above.
- D. Owner's Representative's Action: The Owner's Representative will review each RFI, determine action required, and respond. Allow a reasonable amount of working days for the Owner's Representative's response for each RFI. RFIs received by the Owner's Representative after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for coordination information already indicated in the Contract Documents.
    - d. Requests for adjustments in the date for Substantial Completion or the Contract Sum.
    - e. Requests for interpretation of the Owner's Representative's actions on submittals.
    - f. Incomplete RFIs or inaccurately prepared RFIs.
  2. The Owner's Representative's action may include a request for additional information, in which case the Owner's Representative's time for response will date from time of receipt of additional information.
  3. The Owner's Representative's action on RFIs that may result in a change to the date of Substantial Completion or the Contract Sum may be eligible for the Contractor to submit a Claim in accordance with procedures in General Conditions, Article 10 – Claims and Disputes.
    - a. If the Contractor believes the RFI response warrants change in the date of Substantial Completion or the Contract Sum, notify the Owner in writing within fifteen (15) days of receipt of the RFI response.
- E. On receipt of the Owner's Representative's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify the Owner and Owner's Representative within five days if the Contractor disagrees with response.
- F. RFI Log: Coordinate and cooperate with the Owner to prepare, update and maintain the use of the Contract Manager RFI log. The RFI log will include not less than the following:
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Owner's Representative.

## GENERAL REQUIREMENTS for CONSTRUCTION

4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Owner's Representative's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

### 1.8 CONTRACT MANAGER SOFTWARE SITE

- A. Coordinate and cooperate with the Owner for managing project communication and documentation until Contract Closeout. The Contract Manager software site may include, but is not limited to, the following functions:
1. Project directory.
  2. Project correspondence.
  3. Meeting minutes.
  4. Contract modifications forms and logs.
  5. RFI forms and logs.
  6. Task and issue management.
  7. Submittals forms and logs.
  8. Payment application forms.
  9. Online document collaboration.
  10. Reminder and tracking functions.
  11. Archiving functions.

### 1.9 PROJECT MEETINGS

- A. General: The Owner and/or Owner's Representative will schedule and conduct meetings at the Project site, unless otherwise indicated.
1. Attendees: The Owner and/or Owner's Representative will inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
  2. Agenda: The Owner and/or Owner's Representative will prepare the meeting agenda through the use of the Owner's Contract Manager software and distribute the agenda to all invited attendees.
  3. Minutes: The Owner and/or Owner's Representative will record significant discussions and agreements achieved in Contract Manager and distribute the meeting minutes to everyone concerned.
- B. Construction Kick-off Meeting: The Owner will schedule and conduct a construction kick-off meeting before starting construction, at a time convenient to the Owner and Owner's Representative, upon issuance of the Notice to Proceed.
1. The meeting shall review responsibilities and personnel assignments.
  2. Attendees: The Owner, Owner's Commissioning Authority, Owner's Representative, and their consultants; the Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the meeting shall

## GENERAL REQUIREMENTS for CONSTRUCTION

be familiar with the Project and authorized to make binding decisions on matters relating to the Work.

3. Agenda: The meeting agenda will include items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Phasing.
  - c. Critical work sequencing and long-lead items.
  - d. Designation of key personnel and their duties.
  - e. Lines of communications.
  - f. Procedures for processing field decisions and Change Orders.
  - g. Procedures for RFIs.
  - h. Procedures for testing and inspecting.
  - i. Procedures for processing Applications for Payment.
  - j. Distribution of the Contract Documents.
  - k. Submittal procedures.
  - l. Sustainable design requirements.
  - m. Preparation of As-builts and turnover documents.
  - n. Use of the premises.
  - o. Work restrictions.
  - p. Working hours.
  - q. Owner's occupancy requirements.
  - r. Responsibility for temporary facilities and controls.
  - s. Procedures for moisture and mold control.
  - t. Procedures for disruptions and shutdowns.
  - u. Construction waste management and recycling.
  - v. Parking availability.
  - w. Office, work, and storage areas.
  - x. Equipment deliveries and priorities.
  - y. First aid.
  - z. Security.
  - aa. Progress cleaning.
  - bb. Safety.

4. Minutes: The Owner's representative will record and distribute meeting minutes.

### C. Progress Meetings: The Owner will conduct progress meetings at regular intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: The Owner's Commissioning Authority, and Owner's Representative, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of the Project.
  - a. The Project Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to the

## GENERAL REQUIREMENTS for CONSTRUCTION

Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next scheduled progress meeting period.
- b. Review present and future needs of each entity present, including the following:
  - 1) Interface requirements.
  - 2) Sequence of operations.
  - 3) Status of submittals.
  - 4) Deliveries.
  - 5) Off-site fabrication.
  - 6) Access.
  - 7) Site utilization.
  - 8) Temporary facilities and controls.
  - 9) Progress cleaning.
  - 10) Quality and work standards.
  - 11) Status of correction of deficient items.
  - 12) Field observations.
  - 13) Status of RFIs.
  - 14) Status of proposal requests.
  - 15) Pending changes.
  - 16) Status of Change Orders.
  - 17) Pending claims and disputes.
  - 18) Documentation of information for payment requests.
4. Minutes: The Owner's representative will be responsible for conducting the meeting will use Contract Manager to record and distribute the meeting minutes to each party present and to parties requiring information.
  - a. Schedule Updating: Coordinate with the Owner to revise the Project Schedule after each progress meeting where revisions to the schedule have been made or recognized. The Owner will issue revised schedule concurrently with the report of each meeting.
- D. Preinstallation Meetings: The Owner may conduct preinstallation meetings at the Project site before each construction activity that requires coordination with other construction and major assemblies of the Work requiring tight control and coordination.
  1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow shall attend the meeting. The Owner to advise the Contractor, Owner's Representative and Owner's Commissioning Authority of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.

## GENERAL REQUIREMENTS for CONSTRUCTION

- c. Related RFIs.
  - d. Related Change Orders.
  - e. Purchases.
  - f. Deliveries.
  - g. Submittals.
  - h. Review of mockups.
  - i. Possible conflicts.
  - j. Compatibility problems.
  - k. Time schedules.
  - l. Weather limitations.
  - m. Manufacturer's written recommendations.
  - n. Warranty requirements.
  - o. Compatibility of materials.
  - p. Acceptability of substrates.
  - q. Temporary facilities and controls.
  - r. Space and access limitations.
  - s. Regulations of authorities having jurisdiction.
  - t. Testing and inspecting requirements.
  - u. Installation procedures.
  - v. Coordination with other work.
  - w. Required performance results.
  - x. Protection of adjacent work.
  - y. Protection of construction and personnel.
3. The Owner and/or Owner's Representative will use Contract Manager to record significant meeting discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: The Owner and/or Owner's Representative will distribute minutes of the meeting to each party present and to other parties requiring information.
  5. Do not proceed with installation if the meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the meeting at earliest feasible date.
- E. Project Closeout Conference: The Owner may schedule and conduct a Project closeout conference, at a time convenient to the Owner and Owner's Representative, but no later than sixty (60) days prior to the scheduled inspection date for Substantial Completion.
1. The Owner will conduct the conference to review requirements and responsibilities related to the Project closeout.
  2. Attendees: The Owner, Owner's Commissioning Authority, Owner's Representative, and their consultants; the Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with the Project and authorized to make binding decisions on matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay the Project closeout, including the following:
    - a. Submission of turnover documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Requirements for demonstration and training.

## GENERAL REQUIREMENTS for CONSTRUCTION

- d. Preparation of Contractor's punch list.
  - e. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
  - f. Coordination of separate contracts.
  - g. Owner's partial occupancy requirements.
  - h. Installation of Owner's furniture, fixtures, and equipment.
  - i. Responsibility for removing temporary facilities and controls.
4. Minutes: The Owner and/or Owner's Representative conducting meeting will use ContractManager to record and distribute meeting minutes.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

## GENERAL REQUIREMENTS for CONSTRUCTION

### SECTION 013200 - PROJECT SCHEDULING AND PROGRESS DOCUMENTATION - SINGLE PRIME CONTRACT

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Specification Sections and Bid Milestone Schedule, apply to this Section.

##### 1.2 SUMMARY

- A. This is a single prime contract therefore the Contractor is responsible for the scheduling and documentation requirements as outlined in this section 013200.
- B. Section includes administrative and procedural requirements to plan, schedule and document the progress of construction during the performance of the Work, including the following:
  - 1. Critical Path Method (CPM) schedule and reports.
  - 2. Material location reports.
  - 3. Field condition reports.
  - 4. Special reports.
- C. Related Sections:
  - 1. Section 011200 – Contract Summary of Work, for preparing a combined CPM Schedule.
  - 2. Section 013300 – Submittal Procedure, for submitting schedules and reports.
  - 3. Section 014000 – Quality and Code Requirements, for submitting a schedule of tests and inspections.

##### 1.3 DEFINITIONS

- A. Project: Work at the Site carried out pursuant to one or more Contracts.
- B. Activity: A discrete part of the Contract that can be identified for planning, scheduling, monitoring, and controlling the Project. Activities included in a CPM schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that has no total float.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- C. Not used.
- D. Baseline Schedule: Initial schedule, prepared by the Contractor, to complete the Work of the Contract in accordance with the Contract duration and starting point to which schedule updates are compared.

## GENERAL REQUIREMENTS for CONSTRUCTION

- E. CPM: Critical Path Method is a scheduling method used to plan and schedule construction projects where activities are arranged based on activity relationships creating a time scaled network diagram.
- F. PDM: Precedence Diagram Method follows the standard CPM calculations and allows for special logic relationships creating an interdependent relationship throughout the network.
- G. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no total float.
- H. Data Date: The date when the status of the CPM schedule is determined, showing the calendar start date for the update period.
- I. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either the Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Substantial Completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Substantial Completion date.

### 1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in both electronic (PDF) file format and as electronic backup file in native software format.
- B. CPM Schedule: Schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (baseline or updated) and date on label.
- C. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain; activity ID number, activity description, original duration, remaining duration, actual duration, early and late start and finish dates and total float in calendar days.
  - 1. Activity Report: List of all activities sorted by early or actual start date in each phase, area and level following the physical divisions of the Work.
  - 2. Short Term Activity Report: Lists all activities occurring from the update data date in a two month forward and one month back window.
  - 3. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by early or actual start date. Include activity ID number and float path(s).
  - 4. Total Float Report: Provide a cumulative list of total float from each update period with comments associated to any and all variances.

## GENERAL REQUIREMENTS for CONSTRUCTION

5. Procurement Report: List all procurement activities sorted in order of the item being procured.
  6. Narrative Report: The project scheduler shall describe the nature of the submission, interpretation of calculations, issues affecting progress and a milestone analysis comparing progress against the baseline and update schedules.
- D. Material Location Reports: Submit at monthly intervals.
- E. Field Condition Reports: Submit at time of discovery of differing conditions.
- F. Special Reports: Submit at time of unusual event.
- G. Qualification Data: For project scheduler.

### 1.5 QUALITY ASSURANCE

- A. Project Scheduler Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within timeframes requested by the Owner. The project scheduler shall have or be able to obtain certification as a Planning and Scheduling Professional (PSP) or have a minimum of five years of demonstrated experience scheduling large capital projects.
- B. Prescheduling Conference: The Owner may conduct conference at the Project site to comply with requirements in Section 013100 - Project Management and Coordination. Review methods and procedures related to the Baseline Schedule and the CPM schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
  2. Verify availability of qualified personnel needed to develop and update schedule.
  3. Discuss coordination, including phasing, work stages, area separations, interim milestones and Beneficial Occupancy.
  4. Review delivery dates for Owner-furnished products.
  5. Review schedule for work of Owner's separate contracts.
  6. Review time required for review of submittals and resubmittals.
  7. Review requirements for tests and inspections by independent testing and inspecting agencies.
  8. Review time required for completion and startup procedures.
  9. Review and finalize list of construction activities to be included in schedule.
  10. Review submittal requirements and procedures.
  11. Review procedures for updating schedule.

### 1.6 COORDINATION

- A. Coordinate preparation and processing of CPM schedules and reports with the performance of the Work and with CPM scheduling and reporting of separate Contractors.
1. Coordinate new Baseline Schedules and CPM schedule updates with separate Contractor's when additional Contracts are executed during the entire duration of the Project.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Coordinate CPM schedule with the Contractor's Submission Schedule, progress reports, and other required schedules and reports.
  - 1. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 CRITICAL PATH METHOD SCHEDULE, GENERAL

- A. Not Used.
- B. Activities: Treat each numbered activity as a consumable resource for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 15 days, unless specifically allowed by the Owner.
  - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  - 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 - Submittal Procedures in schedule. Coordinate submittal review times in the CPM schedule with dates entered in the Contractor's Submission Schedule.
  - 4. Startup and Testing Time: Include not less than 15 days for startup and testing.
  - 5. Substantial Completion: Indicate completion on the date established for Substantial Completion, and allow time for the Owner's administrative procedures necessary to execute the Notice of Substantial Completion (NOSC).
  - 6. Incomplete Work items and Contract Closeout: Include not more than 60 days for incomplete Work items and Contract Closeout Requirements.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents, or approved by the Owner prior to use and show how date constraints affect the sequence of the Work.
  - 1. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities.
- D. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
  - 1. Unresolved issues.
  - 2. Unanswered RFIs.
  - 3. Rejected or unreturned submittals.
  - 4. Notations on returned submittals.

## GENERAL REQUIREMENTS for CONSTRUCTION

- E. Recovery CPM Schedule: When periodic update indicates the Work is 15 or more calendar days behind the current approved CPM schedule, submit a separate recovery CPM schedule indicating means by which the Contractor intends to regain compliance with the CPM schedule. Indicate changes to working hours, working days, crew sizes, and equipment required achieving compliance, and dating by which recovery will be accomplished, subject to Owner's approval.
- F. Computer Scheduling Software: Prepare CPM schedules using current version of a program that has been developed specifically to manage CPM schedules and interface with the Owner's electronic file of the Bid Milestone Schedule.
  - 1. Utilize Primavera P6 or P3 Primavera Project Planner operating system.

### 2.2 CRITICAL PATH METHOD SCHEDULE (CPM SCHEDULE)

- A. Baseline Schedule: Prepare schedule using a time-scaled PDM network diagram representing the Work of the Contract. Total float time shall be equal to or greater than zero in the Baseline Schedule.
  - 1. Submit Baseline Schedule within 15 days of the date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work based on indicated activities.
  - 2. Develop network diagram in sufficient time to submit Baseline Schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
    - a. Failure to include any work item required for the performance of the Work shall not excuse the Contractor from completing the Work of the Contract within applicable completion dates, regardless of the Owner's approval of the schedule.
- B. CPM Schedule: Prepare contemporaneous schedules using a time-scaled PDM network for sequencing the Work and showing the progress of the Work.
  - 1. Establish procedures for monitoring and updating the CPM schedule and for reporting progress. Coordinate procedures with the progress meeting and payment request date.
  - 2. Coordinate the Work occurring concurrently through the integration of other Contractors Baseline Schedules into the CPM schedule.
  - 3. Conduct educational workshops to train and inform the Contractor's key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to correlate with Contract durations.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work of the Contract. At minimum, each individual specification section, including General Requirement sections, as indicated in the Project Manual, shall be listed as an activity.
  - 1. Activities ID: Provide a unique identifier to each activity. No activity ID shall be recycled or reused.

## GENERAL REQUIREMENTS for CONSTRUCTION

2. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
  - a. Preparation and processing of submittals.
  - b. Mobilization and demobilization.
  - c. Purchase of materials.
  - d. Delivery.
  - e. Fabrication.
  - f. Utility interruptions.
  - g. Installation.
  - h. Work by Owner that may affect or be affected by the Contractor's activities.
  - i. Testing and commissioning.
  - j. Incomplete Work items and Contract closeout.
3. Actual Activity Dates: Once an activity has been assigned an actual date of occurrence, the status of that activity shall not change. Any change to actual dates must be accompanied with supporting data and approved by the Owner. No actual start date shall occur ahead of the data date.
4. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with the Bid Milestone Schedule dates.
5. Processing: Process data to produce output data status on a computer-drawn, PDM network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract duration.
6. Calculations: The schedule network shall be calculated allowing activities to retain their original logic. Progress override shall not be used when calculating the network status.
7. Logic: Leads and lags will not be used when the creation of an activity will perform the same function. Lag durations contained in the schedule shall not have negative value. Lead and lag durations shall not exceed the durations of the activity they are assigned.
  - a. There shall be only two open ended activities; (1) Notice to Proceed, with no predecessor logic, and (2) Final Payment, with no successor logic. All intermediate activity logic shall be connected.
  - b. Out of sequence activities that have progressed before all preceding logic will be allowed only on a case by case basis, as approved by the Owner. The Contractor shall propose logic corrections to eliminate all out of sequence progress and correct out of sequence progress that continues for more than two update cycles by logic revisions, as approved by the Owner.
8. Float: The Owner shall reject the schedule and schedule updates for the use of float suppression techniques such as preferential sequencing, special lead lags logic constraints, zero total or zero free float constraints, extended activity times, or imposing constraint dates other than what is required by the Contract.
  - a. The use of resource leveling used for the purpose of artificially adjusting activity durations to consume float and influence the critical path is prohibited.
  - b. A schedule showing work completing in less time than the Contract duration and accepted by the Owner, will be considered to have float.
  - c. Any float generated during the performance of the Work, due to efficiencies of the Owner or any Contractor is not for sole use of the party generating the float.

## GENERAL REQUIREMENTS for CONSTRUCTION

- d. Negative float will not be a basis for requesting time extensions and will not be construed as a means of acceleration or schedule extension.
9. Format: Follow the applicable individual specification sections of the Work as the bases for the content of the CPM schedule. Organize the CPM schedule to provide the necessary detail for each area, level, quadrant and section as needed in the performance of the Work.
- D. Changes in the Work: For each proposed change and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall CPM schedule.
- E. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  1. Identification of activities that have changed, including the reason each adjustment was necessary.
  2. Changes in early and late finish dates.
  3. Changes in activity durations in workdays.
  4. Changes in the critical path.
  5. Changes in total float or slack time.
  6. Changes in the duration for Substantial Completion.

### 2.3 REPORTS

- A. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

### 2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise the Owner in advance when these events are known or predictable.

## GENERAL REQUIREMENTS for CONSTRUCTION

### PART 3 - EXECUTION

#### 3.1 CPM SCHEDULE

- A. Project Scheduler: Engage a consultant or person skilled in construction planning and scheduling to provide planning, scheduling, evaluation, and reporting services using CPM scheduling.
1. In-House Option: The Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
  2. Meetings: Project scheduler shall attend all meetings related to the Project progress, alleged delays, and time impact.
- B. CPM Schedule and CPM Reports Updating: Prior to each scheduled progress meeting, update schedule to reflect actual construction progress and activities. Issue schedule and reports one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the CPM reports of each such meeting. As a minimum, schedule update submissions shall occur monthly and within 30 days of the schedule Data Date.
  2. Include CPM reports with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate final remaining duration for each activity.
- C. Distribution: Submit one electronic copy, in format specified, to the Owner and distribute copies of approved schedule and reports to the Owner, Owner's Representative, separate contractors, testing and inspecting agencies, and other parties identified by the Owner with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules and reports to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 013300 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and individual Specification Sections and Contractor's Submission Schedule, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
  - 1. Section 013200 – Construction Progress Documentation, for submitting schedules and reports, includes Contractor's construction schedule.
  - 2. Section 017700 – Contract Closeout Requirements, for documents required to closeout contract.
  - 3. Section 017823 – Operation and Maintenance Manuals, for submitting operation and maintenance manuals.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require the Owner's Representative's responsive action. Action submittals are those submittals indicated in individual specification sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require the Owner's Representative's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual specification sections as informational submittals.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.
- D. Required Submittal List Utility application: Interacts with and to be used with the Owner's Contract Manager system. The Owner's Representative uses the utility to itemize the list of submission items needed to be submitted by the Contractor in order to insure the design intent will be satisfied and inclusive of all Project turnover documents and/or Contract Closeout Requirements.
- E. Contractor's Submission Schedule: The itemized list of project submission requirements printed as a report from Contract Manager. The Contractor enters the date each item needs to be submitted in order to meet the CPM schedule and returns this document to the Owner.

## GENERAL REQUIREMENTS for CONSTRUCTION

### 1.4 ACTION SUBMITTALS

- A. Submittal Schedule: The Contractor's Submission Schedule is attached to this section, prepared by the Owner's Representative. The Contractor is to coordinate and cooperate with the Owner and Owner's Representative to arrange in chronological order by dates required by the construction schedule. Coordinate time required for review, ordering, manufacturing, fabrication, and delivery to establish dates. Coordinate additional time required for making corrections or modifications to submittals noted by the Owner's Representative and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate the Contractor's Submission Schedule with list of subcontracts, the schedule of values, and coordinated CPM schedule.
  2. Initial Submittal: Submit in accordance with start-up CPM schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  3. Final Submittal: Submit concurrently in accordance with the complete CPM schedule.
    - a. Coordinate with the Owner and Owner's Representative revised Contractor's Submission Schedule to reflect changes in current status and timing for submittals.
- B. Format for Submittals: Submit required submittals in electronic (PDF) file format.

### 1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Owner's Representative's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by the Owner's Representative for the Contractor's use in preparing submittals.

Coordination: Coordinate preparation and processing of submittals with the performance of the Work.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Commissioning Authority will review submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Owner's Representative review and approval.
3. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
4. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
5. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - a. Submit Operation and Maintenance Manuals concurrent with action submittal.
  - b. The Owner or Owner's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on the Owner's Representative's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Owner's Representative will advise the Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Re-submittal Review: Allow 15 days for review of each re-submittal.
  4. Sequential Review: Where sequential review of submittals by the Owner's Representative's consultants, the Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- C. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by the Owner's Representative.
  3. Include the following information for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name of Owner's Representative.
    - d. Name of Construction Manager (if applicable).
    - e. Name of Contractor.
    - f. Name of subcontractor.
    - g. Name of supplier.
    - h. Name of manufacturer.
    - i. Submittal number including revision identifier.
      - 1) Submittal number shall be the submittal item number and Submittal Package number designated in the Contractor's Submission Schedule.
    - j. Drawing number and detail references, as appropriate.
    - k. Location(s) where product is to be installed, as appropriate.
    - l. Other necessary identification.
- D. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
  2. Name file with submittal number or other unique identifier, including revision identifier.
  3. Provide means for insertion to permanently record the Contractor's review and approval markings and action taken by the Owner's Representative.
  4. Include the following information on an inserted cover sheet:

## GENERAL REQUIREMENTS for CONSTRUCTION

- a. Project name.
  - b. Date.
  - c. Name and address of Owner's Representative.
  - d. Name of Construction Manager (if applicable).
  - e. Name of Contractor.
  - f. Name of firm or entity that prepared submittal.
  - g. Name of subcontractor.
  - h. Name of supplier.
  - i. Name of manufacturer.
  - j. Number and title of appropriate Specification Section.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Related physical samples submitted directly.
  - n. Other necessary identification.
5. Include the following information as keywords in the electronic file metadata:
- a. Project name.
  - b. Number and title of appropriate Specification Section.
  - c. Manufacturer name.
  - d. Product name.
- E. Options: Identify options requiring selection by the Owner's Representative.
- F. Deviations: Identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless the Owner's Representative observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- H. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. The Owner's Representative will return submittals, without review, received from sources other than the Contractor.
1. Transmittal Form: Use the Contractor's office form.
  2. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Specification Section number and title.
    - i. Indication of full or partial submittal.
    - j. Drawing number and detail references, as appropriate.
    - k. Transmittal numbered consecutively.
    - l. Submittal and transmittal distribution record.
    - m. Remarks.
    - n. Signature of transmitter.

## GENERAL REQUIREMENTS for CONSTRUCTION

3. On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Owner's Representative on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- I. Re-submittals: Make re-submittals in same form and format.
    1. Note date and content of previous submittal.
    2. Note date and content of revision in label or title block and clearly indicate extent of revision.
    3. Resubmit submittals until they are marked with approval notation from the Owner's Representative's action stamp.
  - J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
  - K. Use for Construction: Use only final submittals that are marked with approval notation from the Owner's Representative's action stamp.

## PART 2 - PRODUCTS

### 2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
  1. Submit electronic submittals via email as electronic (PDF) files, to the Owner's Representative. If applicable, the Owner's Representative will forward submittals to the Commissioning Authority for systems being commissioned. The Owner may request paper copies of certain submittals for onsite coordination.
    - a. The Owner's Representative, through the Owner, will return annotated file. Annotate and retain one copy of file as an electronic Project turnover document file.
    - b. The Commissioning Authority through the Owner's Representative will return annotated file.
  2. Operation and Maintenance Manual Submittals: Submit concurrent with the Action Submittal, as related in individual Specification Sections.
  3. Closeout Submittals: Comply with requirements specified in Section 017700 – Contract Closeout Requirements and as listed in the Contractor's Submission Schedule.
  4. Permits, Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Permits, Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Submittal Package number and Submittal Item number.
    - b. Manufacturer's catalog cuts.
    - c. Manufacturer's product specifications.
    - d. Standard color charts.
    - e. Statement of compliance with specified referenced standards.
    - f. Testing by recognized testing agency.
    - g. Application of testing agency labels and seals.
    - h. Notation of coordination requirements.
    - i. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data concurrent with Samples.
  6. Submit Product Data in electronic (PDF) file format.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Submittal Package number and Submittal Item number.
    - b. Identification of products.
    - c. Schedules.
    - d. Compliance with specified standards.
    - e. Notation of coordination requirements.
    - f. Notation of dimensions established by field measurement.
    - g. Relationship and attachment to adjoining construction clearly indicated.
    - h. Seal and signature of professional engineer if specified.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

## GENERAL REQUIREMENTS for CONSTRUCTION

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Submittal Package number and Submittal Item number.
    - b. Generic description of Sample.
    - c. Product name and name of manufacturer.
    - d. Sample source.
    - e. Number and title of applicable Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: For turnover purpose, submit six full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. The Owner's Representative, through the Owner, will return submittal with options selected.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit six sets of Samples. The Owner's Representative, through the Owner, will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a turnover sample.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least six sets of paired units that show approximate limits of variations.
- E. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

## GENERAL REQUIREMENTS for CONSTRUCTION

1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references, as appropriate, covered by subcontract.
  4. Submit subcontract list in PDF electronic file, to the Owner.
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- H. OSHA Certificates: Upon the Owner's request, submit certificates of the OSHA 10-hour Construction Safety and Health Course – S1537-A, for all laborers, workers and mechanics working on site.
- I. Installer Certificates: Upon the Owner's request, submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- J. Manufacturer Certificates: Upon the Owner's request, submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- K. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- L. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- M. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Owner's Representative.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date

## GENERAL REQUIREMENTS for CONSTRUCTION

of the Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.2 OWNER'S REPRESENTATIVE'S ACTION

- A. General: The Owner's Representative will not review submittals that do not bear the Contractor's approval stamp and will return them without action.
- B. Action Submittals: The Owner's Representative will review each submittal, make marks to indicate corrections or modifications required, and return it through the Owner. The Owner's Representative will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: The Owner's Representative will review each submittal and will return it if it does not comply with requirements.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from the Owner's Representative.
- E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.
- G. On projects that have commissioning, the Commissioning Authority will receive copies of the submittals through the Owner's Representative and will provide comments on the submittals via the Owner's Representative.

### 3.3 CONTRACTOR'S SUBMITTAL SCHEDULE

- A. The Contractor's Submission Schedule: The Contractor's Submission Schedule, prepared by the Owner's Representative is attached following the end of this section. The Contractor shall provide the dates each item needs to be submitted to the Owner no later than 30 days after approval of CPM schedule. The schedule shall include the date of all shop drawings, samples, materials that shall be submitted and the date approval is required. The Contractor shall adhere to the submittal processing time as describe in paragraph 1.5 above when developing the submittal schedule. The Contractor is to coordinate and cooperate with the Owner and Owner's Representative to complete scheduling in accordance with the approved CPM schedule.

END OF SECTION 013300

**GENERATOR REPLACEMENT  
VILLAGE HALL AND DPW GARAGE  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NY**

**LIST OF REQUIRED SUBMITTALS**

Key to Abbreviations

- C - Chart, Table, Schedule
- D - Drawing Submittal
- L - Literature Submittal (Catalog Cuts - Specs.)
- N - Narrative Description
- P - Permits and Approvals
- R - Report
- S - Sample Submittal
- W - Wiring Diagram

Specs. Reference	Shop Dwg./Material Submittal	Key	Submittal Date	Approval Date
013100	1. CPM schedule. 2. List of key personnel.	C C		
014000	1. Quality control plan. 2. Permits, licenses, certifications, inspection reports.	N P		
017700	1. Permits, licenses, certifications, inspection reports. 2. Optional Standby Generators: a) Contractor's Test Certificates. b) Approval and inspection Certificates from local Authorities Having Jurisdictions. 3. Natural gas piping systems: a) Contractor's Material and Test Certificate for Underground Piping. b) Contractor's Material and Test Certificate for Aboveground Piping. c) Approval and inspection Certificates from local Authorities Having Jurisdictions.	P  R P  P R R P		

**GENERATOR REPLACEMENT  
VILLAGE HALL AND DPW GARAGE  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NY**

	4. Propane gas tank and piping systems: a) Contractor's Material and Test Certificate for Underground Piping. b) Contractor's Material and Test Certificate for Aboveground Piping. c) Approval and inspection Certificates from local Authorities Having Jurisdictions.	P R  R  P		
017823	1. Operation and Maintenance Manuals.	L		
033000	1. Cast-In-Place Concrete Manufacturer's product data. 2. Shop Drawings. 3. Concrete pad Schedule.	L  D C		
037310	1. Manufacturer's product data.	L		
078400	1. Firestop system design listings. 2. Manufacturer's product data. 3. Manufacturer's installation instruction. 4. Firestop Schedule.	L L L L		
099110	1. Paint manufacturer's product data. 2. Samples of color selection. 3. Product list	L S C		
221123	1. Natural gas piping systems: a) Gas piping system manufacturer's product data. b) Contractor's Material and Test Certificate for Underground Piping. c) Contractor's Material and Test Certificate for Aboveground Piping. d) Approval and inspection Certificates from local Authorities Having Jurisdictions.	L L  R  R P		
260519	1. Conductors and cable product data.	L		
260526	1. Grounding and bonding product data. 2. Informational submittals. 3. Qualification Data. 4. Field quality-control tests	L D R R		

**GENERATOR REPLACEMENT  
VILLAGE HALL AND DPW GARAGE  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NY**

260529	<ol style="list-style-type: none"> <li>1. Hangers and supports product data.</li> <li>2. Shop drawings for hangers and supports.</li> <li>3. Welding certificates.</li> </ol>	L D R		
260533	<ol style="list-style-type: none"> <li>1. Raceways and boxes manufacturer's product data.</li> <li>2. Shop drawings for raceways and boxes.</li> <li>3. Coordination drawings for raceways and boxes.</li> <li>5. Qualification Data.</li> <li>6. Source quality-control test reports.</li> </ol>	L D D D R		
260543	<ol style="list-style-type: none"> <li>1. Underground Ducts and Raceways manufacturer's product data.</li> <li>2. Shop drawings for underground raceways and boxes.</li> <li>3. Source quality-control test reports.</li> </ol>	L D R		
260553	<ol style="list-style-type: none"> <li>1. Electrical systems identification product data.</li> <li>2. Samples for electrical systems identification.</li> <li>3. Identification schedule.</li> </ol>	L S C		
262416	<ol style="list-style-type: none"> <li>1. Panel and Circuit breaker product data.</li> <li>2. Shop drawings for Circuit breakers in existing panelboards.</li> </ol>	L D		
262816	<ol style="list-style-type: none"> <li>1. Product data for enclosed circuit breaker.</li> <li>2. Shop drawings for enclosed circuit breakers.</li> <li>3. Field quality-control test reports.</li> <li>4. Operation and Maintenance Data.</li> </ol>	L D R L		

**GENERATOR REPLACEMENT  
VILLAGE HALL AND DPW GARAGE  
VILLAGE OF SUFFERN, ROCKLAND COUNTY, NY**

263213	<ol style="list-style-type: none"> <li>1. Product data for Engine Generators.</li> <li>2. Shop drawings for Engine Generators.</li> <li>3. Field quality-control test reports.</li> <li>4. Operation and Maintenance Data.</li> <li>5. Approval and inspection Certificates from local Authorities Having Jurisdictions.</li> </ol>	<p>L D R L P</p>		
263600	<ol style="list-style-type: none"> <li>1. Product data for Transfer Switches.</li> <li>2. Shop drawings for Transfer Switches.</li> <li>3. Field quality-control test reports.</li> <li>4. Operation and Maintenance Data.</li> <li>5. Approval and inspection Certificates from local Authorities Having Jurisdictions.</li> </ol>	<p>L D R L P</p>		
313113	<ol style="list-style-type: none"> <li>1. Certificate compliance Statement,</li> <li>2. Product data for Chain Link Fences.</li> </ol>	<p>P L</p>		

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 014000 - QUALITY AND CODE REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and New York State (NYS) Statement of Special Inspections and Tests, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality assurance and quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit the Contractor's other quality assurance and quality control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for the Contractor to provide quality assurance and quality control services required by the Owner or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
  - 1. Section 012100 - Allowances, for testing and inspecting allowances.
  - 2. Section 013200 - Construction Progress Documentation, for developing a schedule of required tests and inspections.
  - 3. Individual Specification Sections, for specific inspections and tests requirements.

#### 1.3 DEFINITIONS

- A. Quality Assurance Services: Activities, actions, and procedures performed during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

## GENERAL REQUIREMENTS for CONSTRUCTION

- C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Product Testing: Tests and inspections that are performed by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Field Quality Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- G. Installer/Applicator/Erector: The Contractor or another entity engaged by the Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
- H. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

### 1.4 ACTION SUBMITTALS

- A. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

### 1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality Control Plan: For quality assurance and quality control activities and responsibilities.
- B. Contractor's Quality Control Manager Qualifications: For supervisory personnel.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.

## GENERAL REQUIREMENTS for CONSTRUCTION

4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality control service.

### 1.6 CONTRACTOR'S QUALITY CONTROL PLAN

- A. Quality Control Plan, General: Submit quality control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to the Owner. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality assurance and quality control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality assurance and quality control procedures similar in nature and extent to those required for Project.
  1. Project quality control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: Include in quality control plan a comprehensive schedule of the Work requiring tests or inspections, including the following:
  1. The Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and the Contractor-elected tests and inspections.
  2. Special inspections required by authorities having jurisdiction and indicated on the "NYS Statement of Special Inspections and Tests."
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work the Owner has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

### 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

## GENERAL REQUIREMENTS for CONSTRUCTION

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

### 1.8 PERMITS, LICENSES, AND CERTIFICATES:

A. The Contractor shall obtain, maintain and pay for all applications, permits, filings, and licenses necessary for the execution of the Work and for the use of such Work when completed as required by any and all authorities having jurisdiction. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of authorities having jurisdiction bearing on performance of the Work.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. The Contractor shall promptly assist the Owner in securing all approvals from authorities having jurisdiction. Without limitation, the Contractor shall assist the Owner in making application for Project approval, variances or other approvals, Letters of Completion, Temporary Certificates of Occupancy, and Certificates of Occupancy, including completion of all necessary applications and supporting documentation.
- C. The Contractor shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems and conduct while in or near the premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Institution.
- D. For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, material certificates/affidavits, approvals, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

### 1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

## GENERAL REQUIREMENTS for CONSTRUCTION

- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
- F. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329, and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Build mockups in location and of size indicated or, if not indicated, as directed by the Owner.
  - 2. Notify the Owner seven days in advance of dates and times when mockups will be constructed.
  - 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at the Project.
  - 4. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 5. Obtain the Owner's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - 7. Demolish and remove mockups when directed by the Owner.

## GENERAL REQUIREMENTS for CONSTRUCTION

### 1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality control services are indicated as the Owner's responsibility, the Owner will engage a qualified testing agency to perform these services.
1. The Owner will furnish the Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to the Owner are the Contractor's responsibility. Perform additional quality control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of the Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as the Contractor's responsibility, engage a qualified testing agency to perform these quality control services.
    - a. Contractor shall not employ same entity engaged by the Owner, unless agreed to in writing by the Owner.
  3. Notify testing agencies at least 24 hours in advance of time (excluding weekends and holidays) when Work that requires testing or inspecting will be performed.
  4. Where quality control services are indicated as the Contractor's responsibility, submit a written report, in duplicate, of each quality control service.
  5. Testing and inspecting requested by the Contractor and not required by the Contract Documents are the Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 - Submittal Procedures.
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting:
1. Regardless of whether original tests or inspections were the Contractor's responsibility, provide quality control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents, or costs attributable to the Contractor's lack of coordination in properly scheduling the Work requiring testing and

## GENERAL REQUIREMENTS for CONSTRUCTION

inspection will be charged to Contractor and the Contract Sum will be adjusted by Change Order.

- F. Testing Agency Responsibilities: Cooperate with the Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify the Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a written report, in duplicate, of each test, inspection, and similar quality control service through Contractor.
  5. Does not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of the Contractor.
- G. Associated Services: The Contractor shall cooperate with agencies performing required tests, inspections, and similar quality control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. The Contractor shall provide the following:
1. Access to the Work, including equipment required to access the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to the Owner, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.



## GENERAL REQUIREMENTS for CONSTRUCTION

### SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections:
  - 1. Section 011200 – Contract Summary of Work, for work restrictions and limitations on utility interruptions.

##### 1.3 USE CHARGES

- A. General: Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the Owner, the Owner's Representatives, occupants of the Project, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: The **Owner will pay** sewer service use charges for sewer usage by all entities for construction operations.
- C. Water Service: The **Owner will pay** water service use charges for water used by all entities for construction operations.
- D. Electric Power Service: The **Owner will pay** electric power service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from the Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from the Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations. |

## GENERAL REQUIREMENTS for CONSTRUCTION

### 1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage; including delivery, handling, and storage provisions for materials subject to water absorption or water damage, discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged Work.
  - 1. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- C. Dust-Control and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-control and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
  - 1. Locations of dust-control partitions at each phase of the work.
  - 2. HVAC system isolation schematic drawing.
  - 3. Location of proposed air filtration system discharge.
  - 4. Other dust-control measures.
  - 5. Waste management plan.

### 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations and requirements of authority having jurisdiction for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ANSI A117.1.

### 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before the Owner's acceptance, regardless of previously assigned responsibilities. Temporary use of permanent facilities during construction may be allowed at the sole discretion of the Owner.

## GENERAL REQUIREMENTS for CONSTRUCTION

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils minimum thickness, with flame-spread rating of 15 or less per ASTM E 84.
- B. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- C. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
- D. Temporary Fire Rated Barrier: Gypsum board temporary fire rated barrier, with metal channel support.
- E. Fire Rated Door and Door Hardware: Hollow metal doors and frames and door hardware.

#### 2.2 Not Used.

#### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. 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 by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, the Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Connect to the Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to the Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

## GENERAL REQUIREMENTS for CONSTRUCTION

- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
  - 1. Toilets: Use of the Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to the Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with approved coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    - b. Maintain negative air pressure within work area using HEPA-equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
  - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
  - 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- E. Electric Power Service: Connect to the Owner's existing electric power service. Maintain equipment in a condition acceptable to the Owner. Obtain all required permits.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Maintain support facilities until Substantial Completion inspection date is scheduled. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Project Signs: See other sections regarding project signs.
- C. Existing Elevator Use: Use of the Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to the Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
  - 1. Do not load elevators beyond their rated weight capacity.
  - 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

## GENERAL REQUIREMENTS for CONSTRUCTION

- D. Existing Stair Usage: Use of the Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to the Owner. At Substantial Completion, restore stairs to condition existing before initial use.
  - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
- F. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by the Owner from fumes and noise.
  - 1. Construct dustproof partitions with fire rated gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
  - 2. Where fire-resistance-rated temporary partitions are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  - 3. Insulate partitions to control noise transmission to occupied areas.
  - 4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.

## GENERAL REQUIREMENTS for CONSTRUCTION

5. Protect air-handling equipment.
  6. Provide walk-off mats at each entrance through temporary partition.
- G. Fire Safety During Construction: Comply with all requirements identified herein as well as the more stringent requirements of the applicable codes (New York State Building and Fire Codes or New York City Building and Fire Codes).
1. No smoking: Smoking shall be prohibited throughout the project/construction site. "No Smoking" signs shall be conspicuously posted at all entrances and throughout the site.
  2. The Contractor shall designate a Fire Prevention Program Superintendent/ Fire Safety Manager who shall be responsible for all fire safety efforts until completion and acceptance of the Work described in the Contract Documents that include but are not limited to the following:
    - a. Prefire Plans. Develop in cooperation with the local Fire Chief and Fire Code Official. Any changes affecting the utilization of information contained in the plan shall result in notification to the local Fire Chief and Fire Code Official.
    - b. Training. Job site personnel shall be trained in fire safety practices and procedures and the proper use of fire protection equipment, including hand-held fire extinguishers, hose lines, fire alarm and sprinkler systems.
    - c. Fire Protection Devices. Fire protection and detection equipment shall be maintained and serviced.
    - d. Hot Work Operations. Welding, cutting, open torches, torch-applied roof system activities, and other hot work operations shall be conducted under a permit system. A fire watch and fire extinguishers shall be provided.
    - e. Impairment of Fire Protection Systems. Coordinate planned, emergency or accidental impairments of fire protection systems to include tagging of impaired systems and notification of Fire Department, Alarm Company, Building Owner/Operator, and Contractors.
    - f. Temporary Covering of Fire Protection Devices. Coverings placed on or over fire protection devices for protection from damage shall be immediately removed upon the completion of the Work in the room or area in which the devices are installed. |

3.5 Not Used.

### 3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  1. Maintain operation of temporary enclosures, 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.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

## GENERAL REQUIREMENTS for CONSTRUCTION

- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves right to take possession of the Project identification signs.
  2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 – Contract Closeout Requirements.

END OF SECTION 015000

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 016000 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Contractor's Submittal Schedule, apply to this section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in the Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Sections:
  - 1. Section 013300 – Submittal Procedure, for product submittals.

#### 1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work of the Contract and purchased new for the Project. The term "product" includes the terms "material," "equipment," and "system."
  - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
  - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Procurement Exemption Approval Product Specification: A specification in which a specific manufacturer's product is named including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes as a single source or sole source provider.

#### 1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

## GENERAL REQUIREMENTS for CONSTRUCTION

1. Include data to indicate compliance with the requirements specified in "Comparable Products" from Article 5, Section 5.04 of the General Conditions.
2. Owner's Representative's Action: If necessary, the Owner's Representative will request additional information or documentation for evaluation within one week of receipt of a comparable product request. The Owner's Representative will notify the Contractor through the Owner of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
  - a. Form of Approval: As specified in Section 013300 - Submittal Procedure.
  - b. Use product specified if the Owner's Representative does not issue a decision on use of a comparable product request within time allocated.

- B. Procurement Exemption Approval Product Specification Submittal: Comply with requirements in Section 013300 - Submittal Procedure. Show compliance with requirements.

### 1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If the Contractor is given option of selecting between two or more products for use on the Project, select product compatible with products previously selected, even if previously selected products were also options.
  1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, the Owner's Representative will determine which products shall be used.

### 1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  1. Schedule delivery to minimize long-term storage at the Project site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to the Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
  1. Store products to allow for inspection and measurement of quantity or counting of units.

## GENERAL REQUIREMENTS for CONSTRUCTION

2. Store materials in a manner that will not endanger the Project structure.
3. Store products that are subject to damage by the elements under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store foam plastic protected from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

### 1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of obligations under requirements of the Contract Documents.
  1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to the Owner.
  2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for the Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
  1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Refer to individual specification sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 013300 – Submittal Procedure.

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and new at time of installation.
  1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. The Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," the Owner's Representative will make selection.

## GENERAL REQUIREMENTS for CONSTRUCTION

5. Descriptive, performance, and reference standard requirements in the Specifications establish characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
7. Provide products that do not contain asbestos.

### B. Product Selection Procedures:

1. Product: Where Specifications include a procurement exemption approval and name a single source, sole source, manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications include a procurement exemption approval and name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for the Contractor's convenience will not be considered.
3. Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
4. Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

### C. Visual Matching Specification: Where Specifications require "match sample", provide a product that complies with requirements and matches sample. The Owner's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

### D. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's full range", select a product that complies with requirements. The Owner's Representative will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

### A. Conditions for Consideration: The Owner's Representative will consider the Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, the Owner's Representative may return requests without action, except to record noncompliance with these requirements:

1. Action Submittal shall be provided in accordance with Submittal Procedures within 60 days after Notice to Proceed.

## GENERAL REQUIREMENTS for CONSTRUCTION

2. Evidence that the proposed product does not require revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  3. Detailed comparison of qualities of proposed product with those named in the Specifications, including attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  4. Evidence that proposed product provides specified warranty.
  5. List of similar installations for completed projects with project names and addresses and names and addresses of Owner's Representatives and owners, if requested.
  6. Samples, if requested.
- B. Comparable Products Costs: Any costs savings to an approved Comparable Product identified and realized by the Contractor shall be shared equal between the Owner (50%) and Contractor (50%).

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 017329 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Responsibility: Each Contractor is responsible for the cutting and patching to permit installation or performance of Work of their contract.
- C. Related Sections include the following:
  - 1. Individual Specification Sections.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of Work of the contract.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of Work of the contract.

#### 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: At each occurrence, describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
  - 3. Products: List products to be used and firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.

## GENERAL REQUIREMENTS for CONSTRUCTION

6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Owner's Representative's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

### 1.5 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
- C. Fire Rated Elements: Do not cut and patch fire rated elements (i.e. floors, walls, roofs, shafts, etc.) in a manner that results in reducing their capacity to perform as intended or that results in decreased fire rating.
- D. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, which results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.
- E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Owner's Representative's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- F. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including other trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

### 1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials, unless specified otherwise in other Sections.
- C. Fire Rated Elements: Provide firestopping products/systems specified in system design listings by approved testing agencies that conform to the construction type, penetrating item, annular space requirements and fire rating involved in each separate assembly. Refer to applicable Individual Specification Sections.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
  - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting or patching to minimize interruption to occupied areas.

#### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
  6. Fire Rated Elements: Install firestopping systems to comply with applicable Individual Specification Sections and firestopping manufacturer's written installation instructions and published drawings for products and applications.

GENERAL REQUIREMENTS for CONSTRUCTION

- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

## GENERAL REQUIREMENTS for CONSTRUCTION

### SECTION 017700 – CONTRACT CLOSEOUT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Notice of Substantial Completion (NOSC) Form, apply to this section.

##### 1.2 SUMMARY

- A. Section includes administrative requirements for preparation and submission of final Contract Closeout Documents, including, but not limited to, the following:

1. Contract Closeout Meeting
2. Notice of Substantial Completion (NOSC) Requirements
  - a. List of Incomplete Work Items
  - b. Contract Turnover Documents
    - 1) As-built Drawings
    - 2) As-built Specifications
    - 3) As-built Schedule
    - 4) Permits, Licenses and Certificates
    - 5) Hazardous Wastes Documents
  - c. General Guarantee
  - d. Operation and Maintenance Manuals
3. Contract Closeout
4. Final Cleaning

- B. Related Sections:

1. Section 014000 – Quality and Code Requirements
2. Section 017823 – Operation and Maintenance Manuals
3. Section 017839 – As-built Documents

##### 1.3 CONTRACT CLOSEOUT Meeting

Not used

##### 1.4 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Submit list of incomplete items in *EXCEL* spreadsheet electronic format. 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

## GENERAL REQUIREMENTS for CONSTRUCTION

Contractor that are outside the limits of construction.

1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  2. Include the following information at the top of each page:
    - a. Project name & number.
    - b. Date.
    - c. Name of Contractor & Contract number.
    - d. Page number.
- B. Reinspection: Submit a written request for reinspection. On receipt of request, the Owner will either proceed with inspection or notify the Contractor of unfulfilled requirements. After inspection, the Owner will notify the Contractor of items, either on the Contractor's list or additional items identified, that must be completed or corrected.
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 to proceed with commencement of Contract Closeout Documents.

### 1.5 CONTRACT TURNOVER DOCUMENTS

- A. Procedure: Contract turnover documents shall be transmitted to the Owner or if stated to the Owner's Representative, fifteen (15) days prior to requesting inspection date for Substantial Completion.
  - B. As-built Drawings: Transmit one paper copy set of marked-up As-built Drawings to the Owner's Representative, with copy of transmittal to Owner. Print each Drawing, whether or not changes and additional information were recorded.
  - C. As-built Specifications: Transmit one paper copy set of marked-up as-built specifications, including addenda and contract modifications to the Owner's Representative, with copy of transmittal to Owner.
  - D. As-built Schedule: Submit one electronic (PDF) copy, certified by the Contractor, of the schedule that reflects the exact manner in which the project was actually constructed, to the Owner.
  - E. [Not used.]
1. Cooperate and help coordinate with agency testing materials as specified in Section 014000 – Quality and Code Requirements. Testing Agency is required to submit final report of special inspections.
  2. [The Contractor to provide one copy of original certification from agency or firm certifying the following and as required by Individual Specification Sections:
    - a. Fire Alarm System – NFPA 72 Form for;
      - 1) Record of Completion
    - b. Elevator – Certification Form from;
      - 1) Qualified Elevator Inspector (QEI)
    - c. Electrical – Certification Form from;

## GENERAL REQUIREMENTS for CONSTRUCTION

- 1) Authority having jurisdiction
- 2) Independent electrical inspection agency acceptable to the Owner

- F. Hazardous Waste Documents: Submit four (4) paper copies of documents to the Owner thirty (30) days prior to requesting inspection date for Substantial Completion. Refer to Individual Specification Sections for all requirements.
- G. Miscellaneous Record Submittals: Refer to Individual Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one electronic (PDF) copy of each submittal.
- H. Reports: Submit written report indicating items incorporated in Contract Documents concurrent with progress of the Work, including modifications, concealed conditions, field changes, product selections, and other notations incorporated.

### 1.6 GUARANTEE

- A. General Guarantee: Comply with General Conditions, Article 13 – Inspection and Acceptance. The date established on the Notice of Substantial Completion form constitutes commencement of the Guarantee period.

### 1.7 OPERATION AND MAINTENANCE MANUALS

- A. Final Manuals Submittal: Submit an electronic copy of a compiled set of complete Operation and Maintenance Manuals in final form as indicated in Section 017823 – Operation and Maintenance Manuals, to the Owner fifteen (15) days prior to requesting date of inspection for Substantial Completion.

### 1.8 CONTRACT CLOSEOUT (same as final application for payment)

- A. Contract Compliance: The Contractor shall comply with the requirements of General Conditions, Section 10.08 – Limitations on Actions.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Preliminary Procedure: All Work and Extra Work of the Contract and requirements of this section must be complete and approved prior to commencement of Contract closeout.
1. The Contractor shall request and submit to the Owner a final Contractor's Pencil Copy billing request that will formulate the final Application for Payment.
  2. The Contractor shall provide outstanding documentation to the Owner in accordance with General Conditions, Article 20 – Opportunity Programs.
- C. Procedures: Upon the Owner's approval of the Contractor's Pencil Copy billing request, Contract closeout documents will be provided to the Contractor. The Contractor shall complete each document and submit all documents with original signature & notary as indicated on forms, the following:
1. Final Application for Payment that includes remaining Retainage.
  2. Final Compliance Report.
  3. Contractor and Subcontractor Certifications Form.
  4. Contractor's Certified Payroll Form.
  5. Release Form -- Final Payment to Contractor.
  6. Consent of Surety -- Final Payment to Contractor, with power of attorney.
- D. Payroll Forms: The Contractor and all Sub-contractors to the Contractor shall submit original copies of the Contractor and Subcontractor Certifications Form and Contractor's Certified Payroll Form.

## PART 2 - PRODUCTS

### 2.1 CLEANING 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.
1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with allowable VOC levels.

## PART 3 - EXECUTION

### 3.1 DEMOBILIZATION

- A. Deliver tools, spare parts, extra materials, and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
- B. Make final changeover of permanent locks and deliver keys to the Owner. Advise the Owner's personnel of changeover.
- C. Terminate and remove temporary facilities from the Project site, along with mockups, construction tools, and similar elements.

## GENERAL REQUIREMENTS for CONSTRUCTION

### 3.2 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for contract turnover document purposes. Post changes and modifications to contract turnover documents as they occur; do not wait until the end of the Project.
- B. Maintenance of Turnover Documents and Samples: Store turnover documents and Samples in the field office apart from the Contract Documents used for construction. Contract turnover documents shall not be used for construction purposes. Maintain turnover documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to contract turnover documents for the Owner's reference during normal working hours during performance of Contract.

### 3.3 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations as applies to Work of the contract.
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain. Replace if soil or stains remain after shampooing.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.

## GENERAL REQUIREMENTS for CONSTRUCTION

- l. 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.
    - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
  - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - n. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in all other applicable sections.

END OF SECTION 017800

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 017823 - OPERATION AND MAINTENANCE MANUALS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections and Contractor's Submission Schedule, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance manual for systems, subsystems, and equipment.
2. Product maintenance data.
3. Systems and equipment maintenance data.

- B. Related Sections:

1. Section 013300 – Submittal Procedures
2. Section 017700 – Contract Closeout Requirements

#### 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Required Manuals: see Section 017700 – Contract Closeout Requirements for additional requirements.

- B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to the Owner's Representative.
  - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  - b. Enable inserted reviewer comments on draft submittals.

## GENERAL REQUIREMENTS for CONSTRUCTION

### PART 2 - PRODUCTS

#### 2.1 REQUIREMENTS FOR OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Organize the manual into separate sections by CSI number based on the table of contents of the project manual, for each system and subsystem, and a separate section for each piece of equipment not part of a system. The manual shall contain the following materials, in the order listed:
1. Title page.
  2. Table of contents.
  3. Manual contents:
    - a. Operation data.
    - b. Product maintenance data.
    - c. Systems and equipment data
- B. Title Page: Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Construction Manager.
  7. Name and contact information for Owner's Representative.
  8. Not used..
  9. Names and contact information for major consultants to the Owner's Representative that designed the systems contained in the manuals.
  10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one media volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents by CSI Section number and then by system, subsystem, and equipment. .
- E. Manuals, Electronic Copy: Submit electronic (PDF) copy of the manual, to the Owner's Representative, concurrent with Action Submittal.

## GENERAL REQUIREMENTS for CONSTRUCTION

### 2.2 OPERATION DATA

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Section and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Operating standards.
  3. Operating procedures.
  4. Operating logs.
  5. Wiring diagrams.
  6. Control diagrams.
  7. Piped system diagrams.
  8. Precautions against improper use.
  9. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

### 2.3 PRODUCT MAINTENANCE DATA

- A. Content: Organize data into a separate section, within the O & M Manual, for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

## GENERAL REQUIREMENTS for CONSTRUCTION

- B. Source Information: List each product included in section identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Guarantees: Include copies of warranties and guarantees lists of circumstances and conditions that would affect validity of warranties.
  - 1. Include procedures to follow and required notifications for warranty claims.

### 2.4 SYSTEMS AND EQUIPMENT MAINTENANCE DATA

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in a separate section within the O & M Manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.

## GENERAL REQUIREMENTS for CONSTRUCTION

3. Identification and nomenclature of parts and components.
  4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Warranties: Include copies of warranties and lists of circumstances and conditions that would affect validity of warranties.
1. Include procedures to follow and required notifications for warranty claims. |

### PART 3 - EXECUTION

#### 3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation shall be provided for review, concurrent, with Action Submittal specified in Individual Specification Section.
1. Correct or modify the manual to comply with the Owner's Representative's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Owner's Representative's and Commissioning Authority's comments and prior to commencing demonstration and training.
- B. Product Maintenance Data: Assemble a complete set of maintenance data, in a separate section, within the O & M Manual, indicating care and maintenance of each product, material, and finish incorporated into the Work.

## GENERAL REQUIREMENTS for CONSTRUCTION

- C. Operation and Maintenance Data: Assemble a complete set of operation and maintenance data, in a separate section, within the O & M Manual, indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate section within the O & M Manual, for each system and subsystem, in the form of an instructional manual for use by operating personnel.
  
- D. Manufacturers' Data: Where manual contain manufacturers' standard printed data; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
  
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in As-built Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original project record documents as part of operation and maintenance manuals.

END OF SECTION 017823

# GENERAL REQUIREMENTS for CONSTRUCTION

## SECTION 017839 – AS BUILT DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. The Contract Documents, including but not limited to, the Drawings and Individual Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for As-built documents, including the following:
  - 1. As-built Drawings
  - 2. As-built Specifications
  - 3. As-built Schedule
  - 4. Record Product Data
  - 5. Miscellaneous record submittals
- B. Related Sections:
  - 1. Section 013200 – Construction Progress Documentation
  - 2. Section 013300 – Submittal Procedure; Required Submittal List
  - 3. Section 017700 – Contract Closeout Requirements
  - 4. Section 017823 – Operation and Maintenance Manuals
- C. Administrative and procedural requirements for contract turnover documents, including, but not limited to the following, as provided in Individual Specifications Sections.
  - 1. Sustainable Documents
  - 2. Commissioning Documents
  - 3. Hazardous Waste Documents

#### 1.3 CLOSEOUT SUBMITTALS

- A. Required Documents: Section 017700 – Contract Closeout Requirements, describes administrative requirements for submission, number and type of copies required for contract closeout requirements.

## GENERAL REQUIREMENTS for CONSTRUCTION

### PART 2 - PRODUCTS

#### 2.1 AS-BUILT DRAWINGS

- A. As-built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings onsite. Review As-built Drawings and shop drawings monthly with the Owner, for approval.
1. Preparation: Daily mark As-built Drawings 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 provide information for preparation of corresponding marked-up As-built Drawings.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Not used.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order.
    - k. Changes made by Bulletin.
    - l. Changes made following the Owner's written orders.
    - m. Details not on the original Contract Drawings.
    - n. Field records for variable and concealed conditions.
    - o. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up as-built prints.
  4. Mark as-built sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

## GENERAL REQUIREMENTS for CONSTRUCTION

### 2.2 AS-BUILT SPECIFICATIONS

- A. Preparation: Mark Specifications 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. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  - 5. Note related Change Orders, record Product Data, and turnover Drawings where applicable.

### 2.3 AS-BUILT SCHEDULE

- A. Final Schedule: Submit to the Owner a final schedule update. The As-built Schedule shall reflect the exact manner in which the project was actually constructed including actual start and finish dates, activities, sequences and logic.
  - 1. The Contractor shall certify the final schedule update as being a true reflection of the way the project was actually constructed.

### 2.4 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  - 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 the Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, As-built Specifications, and As-built Drawings where applicable.

### 2.5 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by Individual 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.
- B. Format: Submit miscellaneous record submittals.
  - 1. Include miscellaneous record submittals directory organized by specification section number and title, electronically linked to each item of miscellaneous record submittals.

## GENERAL REQUIREMENTS for CONSTRUCTION

### PART 3 - EXECUTION

#### 3.1 RECORDING AND MAINTENANCE

- A. Maintain Change Log: Maintain and submit written change log to the Owner, monthly for review indicating items incorporated in contract turnover documents concurrent with progress of the Work, including modifications, concealed conditions, field changes, product selections, and other notations incorporated.
- B. Recording: Maintain one copy of each submittal during the construction period for contract turnover document purposes. Post changes and modifications to contract turnover documents as they occur; do not wait until the end of the Project.
- C. Maintenance of Turnover Documents and Samples: Store turnover documents and Samples in the field office apart from the Contract Documents used for construction. Contract turnover documents are not to be used for construction purposes. Maintain turnover documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to contract turnover documents for the Owner's reference during normal working hours during performance of Contract.

END OF SECTION 017839

# TECHNICAL SPECIFICATIONS

## TABLE OF CONTENTS

<u>SECTION</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
<u>DIVISION 2 – EXISTING CONDITIONS</u>		
024116	Selective Demolition and Removal	024116-1
<u>DIVISION 3 - CONCRETE</u>		
033000	Cast-in-Place Concrete	033000-1
037310	Masonry and Concrete Repair	037310-1
<u>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</u>		
078400	Firestopping	078400-1
<u>DIVISION 9 - FINISHES</u>		
099110	Painting	099100-1
<u>DIVISION 22 – PLUMBING</u>		
221123	Facility Natural-Gas Piping	221123-1
<u>DIVISION 26 - ELECTRICAL</u>		
260100	General Electrical Requirements	260100-1
260519	Electrical Conductors and Cables	260519-1
260526	Grounding and Bonding for Electrical Systems	260526-1
260529	Hangers and Supports for Electrical Systems	260529-1
260533	Raceways and Boxes for Electrical Systems	260533-1
260543	Underground Ducts and Raceways	260543-1
260553	Identification for Electrical Systems	260553-1
260573	Overcurrent Protective Device Coordination Study	260573-1
262416	Panelboards	262416-1
262816	Enclosed Switches and Circuit Breakers	262816-1
263213	Engine Generators	263213-1
263600	Transfer Switches	263600-1
<u>DIVISION 31 – EARTHWORK</u>		
312220	Excavation, Trenching and Backfilling	312220-1
313113	Chain Link Fences and Gates	313113-1

**SECTION 024116**

**SELECTIVE DEMOLITION AND REMOVAL**

**1.0 GENERAL REQUIREMENTS**

- a. Disconnect and remove existing emergency generator, electrical disconnect switches, panels, circuit breakers, conduits and wiring, feeder and branch circuit connections as noted on the drawings and specified herein.
- b. Do not cut or remove any structural member of existing assembly without written permission of facility.

**1.1 OUT OF SERVICE EQUIPMENT**

- a. Take the necessary precautions to ensure that equipment which has been installed, but not yet placed in service, and equipment which has been taken out of service, but not yet removed, does not interfere with the safe operation of the facility.

**2.0 EQUIPMENT REMOVED FROM THE WORK**

- a. Follow the requirements of *Specification Section 260100 – General provisions for Electrical Work*.

**3.0 REMOVING WIRE AND CABLE**

- a. Except as otherwise indicated on the Contract Drawings or directed, remove all existing associated wire and cable, as noted on the drawings. Remove the wire and cable complete, including all knobs, brackets, hangers, insulators and fastenings, and plug holes, etc., as required. Dispose of these items. Existing concealed raceway and wiring behind dry wall and ceiling and within concrete slab shall be abandoned in place.
- c. Where cable or wire in duct is to be removed from service, remove it completely from the duct and seal the duct entrances, all in an approved manner and as directed.

**END OF SECTION**

03/09/2021

**SECTION 033000  
CAST IN PLACE CONCRETE**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and other provisions of the Contract apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Cast-in-place concrete.
2. Equipment base concrete pad and site concrete slab restoration.
3. Miscellaneous post foundations.
4. Steel reinforcement.
5. Formwork.
6. Concrete materials.
7. Field-applied concrete anchors.
8. Finishes.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):

1. ASTM C 94 - Specification for Ready-Mixed Concrete.
2. ASTM C 150 - Specification for Portland Cement.
3. ASTM C 387 - Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.

1.4 SUBMITTALS

- A. Procedures for submittals.

1. Assurance/Control Submittals:

- a. Mix in accordance with the Proportion specification of ASTM C 94, ASTM C 270, ASTM C 387 and required environmental conditions.
- b. Certificates: Submit manufacturer's certificate that Products meet or exceed specified requirements.

2. Shop drawings Submittals:

- a. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

**03/09/2021**

- b. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the Work of this Section with minimum of three (3) years documented experience.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Product Requirements: Transport, handle, store, and protect Products.
- B. Sand for mortar: Store sand for mortar on plastic sheeting to prevent contamination by extraneous chemicals in earth beneath.
- C. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

#### 1.7 PROJECT CONDITIONS OR SITE CONDITIONS

- A. Environmental Requirements:
  - 1. Specific Cold Weather Requirements: When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F, heat the sand and water to maintain this mortar temperature.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
  - 1. Lehigh Portland Cement.
  - 2. Anchor Concrete Products.
  - 3. Custom Concrete Products.
  - 4. Approved Equal.

#### 2.2 CONCRETE MATERIALS

- A. Portland Cement, meeting all requirements for Type I and/or Type III Cement of the Standard Specifications for Portland Cement of the American Society for Testing and Materials Designation C-150 (current edition), shall be used for all work. All the cement shall be stored in waterproof sheds. The Contractor shall submit mill test certificates for cement. Color of any exposed concrete is to be approved by the Architect. Air entrained cement shall not be permitted.

03/09/2021

- B. Aggregate, shall consist of sand, stone screenings or other inert materials with similar characteristics, or a combination thereof conforming to ASTM C-33 having clean, hard, strong, durable uncoated grains and free from injurious amounts of dust, lumps, soft or flaky particles, shales, alkali, organic matter, loam or other deleterious substances.
- C. Water: Potable.
- D. Admixtures: Not permitted unless approved by engineer prior to construction.

### 2.3 MORTAR MIXES

- A. Mortar: Portland Type "S", in accordance with the Proportion specification of ASTM C 270 of 4,000 psi in 28 days:
  - 1. Mixing of components on-site is acceptable.
  - 2. Mixing on-site water and packaged dry blended mix for mortar (ASTM C 387), is acceptable.

### 2.4 STEEL REINFORCEMENT

- A. Reinforcing bars shall be deformed new billet steel bars manufactured by the basic open hearth or electric furnace process. Bars shall conform to ASTM A-615, Grade 60.
- B. Welded wire fabric shall conform to ASTM A-82 and A-185. Wire fabric shall have a minimum ultimate strength of 70,000 psi. Splicing shall conform to the requirements of ACI 318.
- C. Certified copies of mill reports for all reinforcing shall be submitted before reinforcing is placed.
- D. Bars shall be correctly rolled to section and free from surface defects.
- E. Splices in reinforcement shall be as directed. Lapped ends of bars may be placed in contact and securely wired or may be separated sufficiently to permit the embedment of the entire surface of each bar in concrete.

### 2.5 STEEL REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete.

**03/09/2021**

**2.6 FORMS**

Forms shall be of such type as is necessary to produce the desired architectural effect.

- A. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- B. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
  - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
  - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

**2.7 MISCELLANEOUS MATERIALS**

- A. Curing Compound (Strippable) VOC Compliant, 350 g/l: The water based compound shall conform to ASTM C 309. Provide "Kirez DR VOX" by the Euclid Chemical Company. Install in strict accordance with the manufacturer's recommendation.
- B. Concrete Anchors: Drilled-In Anchors into Work shall be adhesive type, unless otherwise noted in the Drawings.
  - 1. Adhesive type: HAS 316 SS threaded rod with HIT-HY 200 adhesive, by Hilti Fastening Systems or other accepted by Engineer.

**2.8 CONCRETE PAD AND SLABS-ON-GRADE**

- A. Proportion normal-weight concrete mixture as follows
  - 1. Minimum Compressive Strength: 4,000 psi at 28 days.
  - 2. Minimum Cementitious Materials Content: 520 lb/cu. yd.
  - 3. Slump Limit: 6 inches, plus or minus 1 inch.
  - 4. Air Content: Do not allow air content of trowel-finished slab to exceed 3 percent.

**2.9 MISCELLANEOUS POST FOUNDATIONS**

- A. Proportion normal-weight concrete mixture as follows
  - 1. Minimum Compressive Strength: 4,000 psi at 28 days.
  - 2. Minimum Cementitious Materials Content: 520 lb/cu. yd.
  - 3. Slump Limit: 6 inches, plus or minus 1 inch.
  - 4. Air Content: Do not allow air content of trowel-finished slab to exceed 3 percent.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Execution requirements: Verification of existing conditions before starting work.
- B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
- C. Do not proceed with Work until unsatisfactory conditions have been corrected.
- D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Village.

### 3.2 MIXING - MORTAR

- A. Thoroughly mix mortar ingredients in accordance with ASTM C 270, in quantities needed for immediate use.
  - 1. Maintain sand uniformly damp immediately before the mixing process.
  - 2. Provide uniformity of mix and coloration.
  - 3. Do not use anti-freeze compounds.
  - 4. If water is lost by evaporation, retemper only within 2 hours of mixing. Do not retemper mortar more than 2 hours after mixing.
- B. Mixing of Mortar and Additive:
  - 1. Liquid and powder are easily mixed in a clean pail, mortar box, wheelbarrow, or mechanical cement mixer set at a low speed for fills and under layments of 1/2" thickness or less.
  - 2. Mix in proportions equal to five (5) pounds of Concrete Repair Mortar to one (1) pint of Concrete Repair Additive. The resulting mix should be applied in successive applications up to a desired thickness.
  - 3. A stiff mix with less additive may be used under these circumstances.
  - 4. Allow thorough overnight drying between applications, if necessary. Once material begins to initial set in mixing vessel, do not remix. A proper mixture remains workable for approximately one hour.
  - 5. Caution: Avoid excessive air entrapment as this reduces the strength content of the mortar, as well as reducing the water resistance. Bond strengths are also adversely affected.

### 3.3 CONCRETE MIXTURES

- A. Concrete equipment slab: Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: 4,000 psi at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
  - 3. Slump Limit: 6 inches, plus or minus 1 inch.

**03/09/2021**

4. Air Content: Do not allow air content of trowel-finished slab to exceed 3 percent.

B. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4,000 psi at 28 days.
2. Minimum Cementitious Materials Content: 520 lb/cu. yd.
3. Slump Limit: 6 inches, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished slab to exceed 3 percent.

### 3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

### 3.5 FORMS, CENTERING AND FORMWORK

A. Forms shall be constructed to conform to shape, form, line and grade required, and shall be maintained sufficiently rigid to prevent deformation under load.

B. Form ties shall be of suitable design and adequate strength for the purpose. Bolts and rods that are to be withdrawn completely shall be coated with grease.

C. Forms shall be thoroughly cleaned before reusing.

D. All wood form work including that used in void spaces, pockets and other similar places shall be removed.

### 3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M).

03/09/2021

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

### 3.7 CONCRETE FINISHING AND CURING

- A. Where surfaces are not finished, the slabs and all corners shall be left smooth in accordance with tolerances specified herein.
- B. Exposed concrete surfaces, the finish of which has been obtained by the use of plywood or board forms, shall have all undesirable joint marks smoothed off and all blemishes removed leaving a smooth and unmarred finish surface. The surface shall be washed with a 5% solution of sodium hydrochloride to remove all stains. Patching shall be accomplished before the concrete has dried thoroughly and prior to curing. Patching mortar shall be of such color as will match the shade of the concrete. Samples of the patching mix shall be prepared to determine a suitable proportion of white cement for shade matching. Imperfect areas shall be chipped out to a minimum depth of one inch, with edges perpendicular to the surface. The area shall be wet, brush coated and patched as hereinbefore specified. The patched area shall be left undisturbed for one hour before final compaction and shall be finished to match the adjoining surface and cured.
1. Exposed concrete surfaces shall be grout cleaned after completion of all patching work. Grout for cleaning shall be the same as for the patching mortar, except that it shall be a paint consistency and the sand shall pass a No. 18 sieve. Grout cleaning of a given area shall be completed in one day's operation and shall be performed in accordance with the following method:
    - a. Wetting the surface of the concrete.
    - b. Brushing on grout, filling all air bubbles and holes.
    - c. Immediately after applying the grout, scouring the surface vigorously with a cork float.

- d. Permitting the grout to set partially and then removing the excess with a sponge rubber float when the operation does not pull grout from the holes.
  - e. Permitting the surface to dry and then rubbing it vigorously with dry burlap to remove all dried grout from the surface.
- C. Concrete surfaces, other than exposed concrete as noted above, shall be without voids except for occasional small air holes. Fins, projecting surfaces not in the same plane, irregular and defective surfaces and holes larger than 1/8" in diameter shall be brought to a reasonable smoothness by grinding or by rubbing suitable for application of the specified bonding admixture and 1/8" finish coat by others. This work shall be done as soon as possible after stripping of forms.
- D. If exposed concrete contains voids or other defects which in the opinion of the Engineer are unsuitable for appearance or permanency, he may order same removed and replaced at the expense of the Contractor.
- E. Curing Compound: Exterior slabs, not receiving a penetrating sealer, shall be cured with the specified clear, non-yellowing curing and sealing compound. Maximum coverage shall be 400 ft<sup>2</sup>/gallon on steel troweled surfaces and 300 ft<sup>2</sup>/gallon on floated or broomed surfaces for the curing/sealing compound.
- F. Strippable Curing Compound: All other slabs, where indicated on the drawings or where approved, shall be cured with the specified strippable curing compound applied in strict accordance with the manufacturer's recommendation.

### 3.8 CONCRETE PADS

Provide concrete pads as indicated on the drawings and as specified.

- A. Construct Concrete Pads.
- 1. Construct concrete pads of dimensions indicated leveled horizontally, but not less than 6 inches larger in both directions than supported unit and .
  - 2. Install epoxy-coated anchor bolts for supported equipment.
  - 3. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 4. Install anchor bolts required for proper attachment to supported equipment.
  - 5. Use 4,000-psig, 28-day, compressive-strength concrete and reinforcement as specified and as indicated on the drawings.

### 3.9 MISCELLANEOUS POST FOUNDATIONS

Provide Miscellaneous post foundations as indicated on the drawings and as specified.

- A. Construct post foundations.
- 1. Construct concrete post foundations of dimensions indicated.
  - 2. Excavate the ground of dimensions indicated.
  - 3. Place and secure post and bollards plumbed vertically.
  - 4. Use 4,000-psig, 28-day, compressive-strength concrete as specified and as indicated on the drawings.

**03/09/2021**

**3.10 FIELD QUALITY CONTROL**

- A. Inspection will be performed under provisions of Division 01.
- B. Special Inspection and Testing Company hired by the Village will perform the following:
  - 1. Collect and review tickets for each batch of concrete delivered. Annotate water or admixtures added subsequent to batching.
  - 2. Temperature: ASTM C1064; one test hourly. Take additional tests where warranted by weather conditions or delays in delivery.
  - 3. Slump: ASTM C143; one test at point of placement at start of each day's pour; additional tests when concrete consistency appears to have changed.

**END OF SECTION**

**SECTION 037310  
MASONRY AND CONCRETE REPAIR**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Masonry wall whole repair.
  - 2. Concrete floor and slab repair.

**1.2 REFERENCES**

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 150 - Specification for Portland Cement.
  - 2. ASTM C 270 - Specification for Mortar for Unit Masonry.
  - 3. ASTM C 387 - Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.

**1.3 SUBMITTALS**

- A. Submit product data to be used for Portland cement.

**1.4 DELIVERY, STORAGE AND HANDLING**

- A. Store sand for mortar on plastic sheeting to prevent contamination by extraneous chemicals in earth beneath.

**1.5 PROJECT CONDITIONS OR SITE CONDITIONS**

- A. Environmental Requirements:
  - 1. Specific Cold Weather Requirements: When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F, heat the sand and water to maintain this mortar temperature.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. Portland Cement: ASTM C 150, normal-Type I or Type II; gray color. Fly ash, slag, and pozzolans not permitted as substitutes for Portland cement.

- B. Mortar Aggregate: ASTM C 144, standard masonry type; clean, dry, protected against dampness, freezing, and foreign matter.
- C. Calcium chloride is not permitted in mortar or grout. Admixtures or other chemicals containing Thyocyanates, Calcium Chloride or more than 0.1 percent chloride ions are not permitted.
- D. Water: Potable.
- E. Admixtures: Not permitted unless approved by Contracting Officer prior to construction.

## 2.2 MIXES - MORTAR

- A. Mortar: Portland Type "S", in accordance with the Proportion specification of ASTM C 270 of 3,000 psi in 28 days:
  - 1. Mixing of components on-site is acceptable.
  - 2. Mixing on-site water and packaged dry blended mix for mortar (ASTM C 387), that contains no masonry cement, is acceptable.
- B. Pointing Mortar: Duplicate original mortar proportions. Add aluminum tristearate, calcium stearate, or ammonium stearate equal to 2 Percent of Portland cement weight.
- C. Mortar Color: Submit samples to match the existing mortar surface color to the Owner's Representative for selection and approval prior to proceeding with the actual Work.
- D. Prior to matching mortar color, thoroughly clean the surface of the masonry prior to matching the mortar color to the proprietary manufacturer's color selection, prior to submitting to the Owner's Representative for final approval.

## 2.3 MIXING - MORTAR

- A. Thoroughly mix mortar ingredients in accordance with ASTM C 270, in quantities needed for immediate use.
  - 1. Maintain sand uniformly damp immediately before the mixing process.
  - 2. Provide uniformity of mix and coloration.
  - 3. Do not use anti-freeze compounds.
  - 4. If water is lost by evaporation, retemper only within 2 hours of mixing. Do not retemper mortar more than 2 hours after mixing.
  - 5. Apply Portland type masonry mortar into lag bolt holes with a low pressure injection device.
- B. Mixing of proprietary product "Concrete Repair Mortar and Additive by Custom Products:
  - 1. Liquid and powder are easily mixed in a clean pail, mortar box, wheelbarrow, or mechanical cement mixer set at a low speed for fills and under layments of 1/2" thickness or less.

2. Mix in proportions equal to five (5) pounds of Concrete Repair Mortar to one (1) pint of Concrete Repair Additive. The resulting mix should be applied in successive applications up to a desired thickness.
3. A stiff mix with less additive may be used under these circumstances.
4. Allow thorough overnight drying between applications, if necessary. Once material begins to initial set in mixing vessel, do not remix. A proper mixture remains workable for approximately one hour.
5. Caution: Avoid excessive air entrapment as this reduces the strength content of the mortar, as well as reducing the water resistance. Bond strengths are also adversely affected.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
- C. Report in writing to Owner's Representative prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
- D. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

#### **3.1 INSTALLATION**

- A. Thoroughly rake and clean out all holes, and remove old lead anchors in all CMU units.
- B. Install mortar to cover all holes with a smooth finish.
- C. Repair Mortar and Additive should be applied:
  1. With an injection device.
  2. Using adequate pressure on trowel or injection device to ensure maximum adhesion.
- D. For concrete floor slab repairs remove all dirt and debris. Clean and dry the section of the slab to receive floor patch and level floor.

END OF SECTION

\* \* \* \*

## SECTION 078400 - FIRESTOPPING

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and other provisions of Specifications apply to this Section.

#### 1.2 SUMMARY

- A. Provide firestop systems consisting of a material, or combination of materials installed to retain the integrity of fire resistance rated construction by maintaining an effective barrier against the spread of flame, smoke and/or hot gases through penetrations, fire resistive joints, and perimeter openings in accordance with the requirements of the Building Code for this project.
- B. Firestop systems shall be used in locations including, but not limited to, the following:
  - 1. Penetrations through fire resistance rated floor and roof assemblies including both empty openings and openings containing penetrants.
  - 2. Penetrations through fire resistance rated wall assemblies including both empty openings and openings containing penetrants.
  - 3. Membrane penetrations in fire resistance rated wall assemblies where items penetrate one side of the barrier.
  - 4. Joints between fire resistance rated assemblies.
  - 5. Perimeter gaps between rated floors/roofs and an exterior wall assembly.
- C. Related Sections include, but are not limited to, the following:
  - 1. Division 07 – Thermal and Moisture Protection
  - 2. Division 09 – Finishes
  - 3. Division 23 – Plumbing
  - 4. Division 26 – Electrical

#### 1.3 REFERENCES

- A. New York State Uniform Fire Prevention and Building Code (2015 Edition).
- B. National Fire Protection Association (NFPA)
  - 1. NFPA 101 (Life Safety Code)
- C. American Society For Testing and Materials Standards (ASTM):
  - 1. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 2. ASTM E814: Standard Test Method for Fire Tests of Through-Penetration Firestops.
  - 3. ASTM E1966: Test Method for Resistance of Building Joint Systems.
  - 4. ASTM E1399: Test Method for Cyclic Movement and Measuring Minimum and Maximum Joint Width.
  - 5. ASTM E119: Methods of Fire Tests of Building Construction and Materials.
  - 6. ASTM E2174: Standard Practice for On-Site Inspection of Installed Fire Stops
  - 7. ASTM E2307: Standard Test Method for Determining the Fire Endurance of Perimeter Fire Barrier Systems Using the Intermediate-Scale, Multi Story Test Apparatus (ISMA)
  - 8. ASTM E2393-04 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers
- D. Underwriters Laboratories Inc. (UL):

1. UL Qualified Firestop Contractor Program.
  2. UL 263: Fire Tests of Building Construction and Materials.
  3. UL 723: Surface Burning Characteristics of Building Materials.
  4. UL 1479: Fire Tests of Through-Penetration Fire Stops.
  5. UL 2079: Tests for Fire Resistance of Building Joint Systems.
- E. UL Fire Resistance Directory -Volume 2:
1. Through-Penetration Firestop Devices (XHJI)
  2. Fire Resistive Ratings (BXUV)
  3. Through-Penetration Firestop Systems (XHEZ)
  4. Fill, Void, or Cavity Material (XHHW)
- F. Omega Point Laboratories (OPL)
1. Building Products, Materials & Assemblies – Volume II
- G. Factory Mutual Research (FM):
1. FM 4991: FM Approval Standard of Firestop Contractors – Class 4991

#### 1.4 DEFINITIONS

- A. Firestopping: The use of a material or combination of materials in a fire-rated structure (wall or floor) where it has been breached, so as to restore the integrity of the fire rating on that wall or floor.
- B. System: The use of a specific firestop material or combination of materials in conjunction with a specific wall or floor construction type and a specific penetrant(s).
- C. Barrier: Any bearing or non-bearing wall or floor that has an hourly fire and smoke rating.
- D. Through-penetration: Any penetration of a fire-rated wall or floor that completely breaches the barrier.
- E. Membrane-penetration: Any penetration in a fire-rated wall or floor/roof-ceiling assembly that breaches only one side of the barrier.
- F. Fire Resistive/Construction Joint: Any gap, joint, or opening, whether static or dynamic, between two fire rated barriers including where the top of a wall meets a floor; wall edge to wall edge applications; floor edge to floor edge configurations; floor edge to wall.
- G. Perimeter Barrier: Any gap, joint, or opening, whether static or dynamic, between a fire rated floor assembly and an exterior wall assembly.
- H. Approved Testing Agencies: Not limited to: Underwriters Laboratory (UL), Factory Mutual (FM), Warnock Hersey, and Omega Point Laboratory (OPL).

#### 1.5 PERFORMANCE REQUIREMENTS

- A. Penetrations: Provide through-penetration and membrane-penetration firestop systems that are produced and installed to resist the spread of fire, passage of smoke and other hot gases according to requirements indicated, to restore the original fire-resistance rating of assembly penetrated.
1. Provide and install complete penetration firestopping systems that have been tested and approved by nationally accepted testing agencies per ASTM E814 or UL 1479 fire tests in a configuration that is representative of field conditions.
  2. F-Rated Systems: Provide firestop systems with F-ratings indicated, as determined per ASTM E814 or UL 1479, but not less than one (1) hour or the fire resistance rating of the assembly being penetrated.

3. T-Rated Systems: Provide firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E814 or UL 1479, where required by the Building Code.
  4. L- Rated Systems: Provide firestop systems with L- ratings less than 5cfm/sf.
  5. W-Rated systems: Provide firestop systems that are resistant to water. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
  6. For penetrations involving non-metallic, CPVC, PVC, or plastic piping, tubing or conduit, provide firestop systems that are chemically compatible in accordance with Manufacturer requirements.
  7. For penetrations involving insulated piping, provide firestop systems not requiring removal of insulation.
  8. For penetrations involving fire or fire/smoke dampers, only firestop products approved by the damper manufacturer shall be installed in accordance with the damper installation instructions.
- B. Fire Resistive Joints: Provide joint systems with fire resistance assembly ratings indicated, as determined by UL 2079 (ASTM E1399 and E1966), but not less than the fire resistance assembly rating of the construction in which the joint occurs. Firestopping assemblies must be capable of withstanding anticipated movements for the installed field conditions.
1. For firestopping assemblies exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  2. For floor penetrations exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means, as specified by the Architect.
  3. L- Rated Systems: Provide firestop systems with L- ratings less than 5cfm/sf.
- C. Firestopping products shall have flame spread ratings less than 25 and smoke-developed ratings less than 450, as determined per ASTM E 84. Note: Firestop products installed in plenum spaces shall have a smoke developed rating less than 50.
- D. Engineering Judgment (EJ): Where there is no specific third party tested and classified firestop system available for an installed condition, the Contractor shall obtain from the firestopping material manufacturer an Engineering Judgment (EJ) to be submitted to the Approving Authority, Design Professional and Authority Having Jurisdiction for approval prior to installation. The EJ shall follow International Firestop Council (IFC) guidelines.

#### 1.6 SUBMITTALS

- A. Product Data: For each type of firestopping product selected. Manufacturers certification must verify that firestopping materials are free of asbestos, lead and contain volatile organic compounds (VOCs) within limits of the local jurisdiction.
- B. Design Listings: Submit system design listings, including illustrations, from a qualified testing and inspecting agency that is applicable to each firestop configuration.
- C. Installation Instructions: Submit the manufacturer's installation instruction for each firestop assembly.
- D. Where there is no specific third party tested and classified firestop system available for a particular configuration, the Contractor shall obtain from the firestopping material manufacturer an Engineering Judgment (EJ) for submittal.
- E. Material Safety Data Sheet (MSDS): Submit for each type of firestopping product selected.

03/09/2021

- F. Qualification Data: For firms and persons specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Submit documents as per 1.7.
- G. A quality control manual approved by FM or UL (if applicable).
- H. Firestop Schedule: Submit schedule (see appendix A) itemizing the following:
  - 1. Manufacturer’s product reference numbers and/or drawing numbers.
  - 2. Listing agency’s design number.
  - 3. Penetrating Item Description/Limits: Material, size, insulated or uninsulated, and combustibility.
  - 4. Maximum allowable annular space or maximum size opening.
  - 5. Wall type construction.
  - 6. Floor type construction.
  - 7. Hourly Fire resistance rating of wall or floor.
  - 8. F rating.
  - 9. T, L, and W rating, if applicable.
- I. Firestop Application Log: A separate binder shall be prepared and kept on site for use by the Inspection Agency and the Authority Having Jurisdiction. The binder shall contain the following:
  - 1. The binder shall be a three (3) ring binder.
  - 2. Firestop Schedule (see appendix A)
  - 3. All approved firestopping assemblies including engineering judgments shall be provided and organized by trade.
  - 4. Copy of manufacturer’s installation instruction for each firestop assembly.
  - 5. A matrix or table of contents listing each assembly shall be provided.
  - 6. The binder shall be updated as new firestop assemblies or EJ’s are added.
  - 7. The binder shall be kept on-site at a location approved by the Owner.
  - 8. Qualifications or Certification of Installer

#### 1.7 QUALITY ASSURANCE

- A. Provide firestopping system design listings from UL, FM, Warnock Hersey or OPL in accordance with the appropriate ASTM Standard(s) per article 1.5.
- B. Contractor Qualifications: An acceptable Firestop Contractor shall be:
  - 1. Licensed by State or Local Authority where applicable, or
  - 2. FM Research approved in accordance with FM Standard 4991, or
  - 3. UL Qualified Firestop Contractor, or
  - 4. Meet the following requirements
    - i. Installation personnel shall be trained by the approved firestop manufacturer.
    - ii. The installation firm shall be experienced in installing firestop systems and fire resistive joint systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance.
    - iii. Qualifications include having the necessary experience, staff, and training to install manufacturer’s products per specified tested and listed system requirements.
    - iv. Minimum of three (3) years experience and shown to have successfully completed not less than 5 comparable scale projects and provide references.

03/09/2021

- C. Single Source Limitations: Obtain firestop systems for all conditions from a single manufacturer.
- D. Materials from different firestop manufacturers shall not be installed in the same firestop system or opening.
- E. Firestopping material shall be asbestos and lead free and shall not incorporate nor require the use of hazardous solvents.
- F. Firestopping sealants must be flexible, allowing for normal movement.
- G. Firestopping materials shall not shrink upon drying as evidenced by cracking or pulling back from contact surfaces such that a void is created.
- H. Firestopping materials shall be moisture resistant, and may not dissolve in water after curing.
- I. Materials used shall be in accordance with the manufacturer's written installation instructions.
- J. Identify installed firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and provide a label material that will result in partial destruction of label if removal is attempted. Include the following information on labels:
  - 1. The words "Warning - Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
  - 2. Contractor's name, address, and phone number.
  - 3. Firestop system designation of applicable testing and listing agency.
  - 4. Date of installation.
  - 5. Firestop system manufacturer's name.
  - 6. Installer's name.
  - 7. Inspector's name (if applicable)
- K. Inspection of penetrations through fire rated floor and wall assemblies shall be in accordance with ASTM E2174, Standard Practice for On-Site Inspection of Installed Fire Stops and ASTM E2393-04 Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers. The Owner may engage a qualified, independent inspection agency, or material testing agency to perform these inspections.
- L. Field Mock-up Installations: Prior to installing firestopping, erect mock-up installations for each type firestop system indicated in the Firestop Schedule to verify selections made and to establish standard of quality and performance by which the firestopping work will be judged by the Owner or Owner's Representative. Obtain acceptance of mock-up installations by the Owner or Owner's Representative before start of firestopping installation. Provide at least 72 hours notice to Owner or Owner's Representative prior to inspection.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturer's labels identifying product and manufacturer, date of manufacture/expiration, lot number, listing agency's classification marking, and mixing instructions for multi-component materials.

03/09/2021

- B. Store and handle materials per manufacturer's instructions to prevent deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
- C. All firestop materials shall be installed prior to expiration date.

#### 1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Install firestopping when ambient or substrate temperatures are within limits permitted by the manufacturer's written instructions. Do not install firestopping when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate per the manufacturers written instructions on the product's Material Safety Data Sheet.
- C. Verify the condition of the substrates before starting work.
- D. Care should be taken to ensure that firestopping materials are installed so as not to contaminate adjacent surfaces.

#### 1.10 COORDINATION

- A. Coordinate areas prior to firestopping installation with the Owner, Construction Manager and/or all other Contractors.
- B. Coordinate construction of openings and penetrating items to ensure that firestopping assemblies are installed according to specified requirements. Opening shall not exceed maximum restrictions allowable for annular spacing per listing or acceptable Engineering Judgments.
- C. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- D. Do not conceal firestopping installations until the Owner's inspection agency or Authorities Having Jurisdiction have examined each installation.
- E. Schedule firestopping after installation of penetrants and joints but prior to concealing or obstructing access to areas requiring firestopping.
- F. Preinstallation Conference: This conference should be a joint meeting attended by the Owner's Representative and all prime contractors, respective firestopping sub-contractors and firestopping company field advisor to review project requirements. The agenda for the conference should include the following topics:
  - 1. Review scope of work.
  - 2. Review shop drawings and firestop application log.
  - 3. Review mock-up requirements.
  - 4. Discuss identification labels and locations.
  - 5. Review schedule, coordination and sequencing with all trades.
  - 6. Review any engineering judgments or other special requirements.
  - 7. Function and frequency of inspections and testing labs.
- G. Destructive testing shall be performed at mock up and at pre determined intervals according to ASTM E 2174 and ASTM E 2393-04 by the inspector and with the installing Contractor present. Inspector to test for in place installation conformance to tested and listed system or engineering judgment details. Non conformances will result in additional destructive testing, at the cost of the installer.

## **PART 2 - PRODUCTS**

### **2.1 FIRESTOPPING, GENERAL**

- A. Firestopping products specified in system design listings by approved testing agencies may be used providing they conform to the construction type, penetrant type, annular space requirements and fire rating involved in each separate assembly.
- B. Manufacturer of firestopping products shall have been successfully producing and supplying these products for a period of not less than three years and be able to show evidence of at least ten projects where similar products have been installed and accepted.
- C. Accessories: Provide components for each firestop system that is needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by the firestopping manufacturer and by the approved testing agencies for the firestop systems indicated. Accessories include, but are not limited to the following items:
  - 1. Permanent forming/damming/backing materials, including the following:
    - i. Slag wool fiber insulation.
    - ii. Foams or sealants used to prevent leakage of fill materials in liquid state.
    - iii. Fire-rated form board.
    - iv. Polyethylene/polyurethane backer rod.
    - v. Rigid polystyrene board.
  - 2. Temporary forming materials.
  - 3. Substrate primers.
  - 4. Steel sleeves
- D. All firestopping products and systems shall be designed and installed so that the basic sealing system will allow the full restoration of the thermal and fire resistance properties of the barrier being penetrated with minimal repair if penetrants are subsequently removed.

### **2.2 MIXING**

- A. For those products requiring mixing before application, comply with firestopping manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

### **2.3 MANUFACTURERS**

- A. Subject to compliance with the requirements, provide products by one of the following or equivalent manufacturers:
  - 1. Grace Construction Products.
  - 2. Nelson Firestop Products.
  - 3. Hilti Firestop Products.
  - 4. A/D Fire Protection Systems Inc.
  - 5. RectorSeal Corporation (The).
  - 6. Specified Technologies Inc.

03/09/2021

7. 3M; Fire Protection Products Division.
8. Tremco; Sealant/Weatherproofing Division.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Verify that all pipes, conduits, cables, and/or other items which penetrate fire-rated construction have been permanently installed prior to installation of firestops.

#### **3.2 PREPARATION**

- A. Surface Cleaning: Clean out openings immediately before installing firestop systems to comply with written recommendations of firestopping manufacturer and the following requirements:
  1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of firestop systems.
  2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestop systems. Remove loose particles remaining from cleaning operation.
  3. Remove laitance and form-release agents from concrete.

#### **3.3 FIRESTOP SYSTEMS INSTALLATION**

- A. General: Install firestop systems to comply with "Performance Requirements" article in Part 1 and firestopping manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Installation of firestopping shall be performed by an applicator/installer qualified as described in article 1.7.
- C. Apply firestopping in accordance with approved testing agencies listed system designs or manufacturer's EJ per the manufacturer's installation instructions.
- D. Verify that environmental conditions are safe and suitable for installation of firestop products.
- E. Install forming/damming/backing materials and other accessories required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire resistance ratings required.
- F. Install joint forming/damming materials and other accessories required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths of installed firestopping material relative to joint widths that allow optimum movement capability and achieve fire resistance ratings required.
- G. Install metal framing, curtain wall insulation, mechanical attachments, safing materials and firestop materials as applicable within the system design.
- H. Install fill materials for firestop systems by proven techniques to produce the following results:

03/09/2021

1. Fill voids, joints and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  2. Apply materials so they fully contact and adhere to substrates formed by openings and penetrating items.
  3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
  4. Tool non-sag firestop materials after their application and prior to the time skinning begins. Use tooling agents approved by the firestopping manufacturer.
- I. On vertical pipe penetrations, lift riser clamps to permit the installation of firestopping around the entire pipe penetration. For penetrations involving fire or fire/smoke dampers, only firestop products approved by the damper manufacturer shall be installed in accordance with the damper installation instructions.

### 3.4 FIELD QUALITY CONTROL

- A. Inspecting Agency: Authorities Having Jurisdiction, the Owner, or Owner's Representative shall be allowed to perform random destructive testing during inspection of firestop systems to verify compliance per listings or manufacturer's installation instructions. All areas of work must be accessible until inspection by the applicable Authorities Having Jurisdiction and inspection agencies. The contractor shall be responsible to repair all tested assemblies with no cost to the owner.
- B. Proceed with enclosing firestop systems with other construction only after inspections are complete.
- C. Where deficiencies are found, repair or replace firestop systems so they comply with requirements.

### 3.5 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings, as Work progresses by methods and with cleaning materials that are approved in writing by firestopping manufacturer(s) and that do not damage materials in which openings occur. Leave finished work in neat, clean condition with no evidence of spillovers or damage to adjacent surfaces.
- B. Provide final protection and maintain conditions during and after installation that ensure firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestop systems immediately and install new materials to produce firestop systems complying with specified requirements.

**FIRESTOP SCHEDULE**

Project No:	Contractor Name and Address:	Date Submitted:
Project Title:	Supplier/Installer Name and Address:	Company Field Advisor Name and Address:
	Manufacturer Name and Address:	

Manufacturer's Product Reference Numbers and/or Drawing Numbers	U.L., FM, Warnock Hersey or Omega Point Lab Penetration Design Nos.	Penetrating Item: Material, Size, Insulated, Combustible, Joint, Perimeter, etc. Description:	Maximum Allowable Annular Space or Maximum Size Opening	Wall type Construction		Floor Type Construction	Fire Resistance Rating of Wall or Floor (Hourly)	F Rating	T Rating (floors Only)	L Rating (if available)	W Rating (if available)
				DES.	CONST.						
Example No. 1 DCFSS-130	UL #130	Maximum 4" Steel Pipe Non-Insulated		P4	6" CMU	N.A.	1 Hour	1 Hour	N.A	.	
Example No. 2 5300-ICF88.01	UL #591	Maximum 4" PVC Pipe		N.A.	N.A.	UL # D916	3 Hour	1 Hour	2 Hour		
Exmple No. 3	CW-S-2006	Curtain Wall/Perimeter	6" to 12"	NA	NA	4 ½" Reinforced LW concrete	2 Hour	2 Hour	NA	1 CFM/ Lin Ft.	

**SECTION 099110  
PAINTING**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Surface preparation and the application of paint systems on the following interior and exterior substrates:
  - 1. Steel.
  - 2. Galvanized metal.
  - 3. Exterior and Interior wall.

**1.2 RELATED SECTIONS**

- A. 221123 - Facility Natural-Gas Piping.
- B. 260533 - Raceways and Boxes for Electrical Systems.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product Indicated.;
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 Inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

**1.4 QUALITY ASSURANCE**

- A. MPI Standards:
  - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List". See Interior painting spec section.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in dean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

## 1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
  - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Benjamin Moore & Co.
  - 2. ICI Paints.
  - 3. MAB Paints
  - 4. Sherwin-Williams Company.

### 2.2 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

- B. Colors: Submit color pallet and sample for approval by the Owner.

## 2.4 SCHEDULE OF INTERIOR FINISHES

- A. Electrical conduits:  
Provide prime coat and finish painting of electrical conduits. Finish paint color shall be selected by the facilities Super. Submit color sample for approval.
- B. Interior wall and ceiling finishes:  
Provide repair and patching of existing interior wall and ceiling disturbed during construction. Provide prime coat and finish painting of interior wall disturbed. Finish paint color shall be selected by the facilities Super. Submit color sample for approval.

## 2.5 SCHEDULE OF EXTERIOR FINISHES

- A. Natural gas pipe:  
Provide prime coat and finish painting of Natural gas pipe. Submit color sample for approval.
- B. Exterior wall finishes:  
Provide repair and patching of existing exterior wall disturbed during construction. Provide prime coat and finish painting of exterior wall disturbed. Finish paint color shall be selected by the facilities Super. Submit color sample for approval.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
- D. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual", applicable to substrates and paint systems indicated. Remove items that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

- B. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
- D. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

**03/09/2021**

## SECTION 221123 - FACILITY NATURAL-GAS PIPING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and other provisions of the Specifications apply to this Section.

#### 1.2 RELATED SECTIONS

- A. Section 012100 - Allowances.

#### 1.3 SUMMARY

- A. Section Includes:
  - 1. Pipes, tubes, and fittings.
  - 2. Pipe support.
  - 3. Piping specialties.
  - 4. Piping and tubing joining materials.
  - 5. Valves.
  - 6. Pressure regulators.
  - 7. Service meters.
  - 8. Concrete bases.

#### 1.4 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions.

#### 1.5 PERFORMANCE REQUIREMENTS

- A. Minimum Operating-Pressure Ratings:
  - 1. Piping and Valves: 100 psig
  - 2. Service Regulators: 65 psig
  - 3. Minimum Operating Pressure of Service Meter: 5 psig
- B. Natural-Gas System Pressure: 0.5 psig

**03/09/2021**

## 1.6 ACTION SUBMITTALS

- A. Product Data: For each type of the following:
  - 1. Piping specialties.
  - 2. Valves. Include pressure rating, capacity, settings, and electrical connection data of selected models.
  - 3. Pressure regulators. Indicate pressure ratings and capacities.
  - 4. Service meters. Indicate pressure ratings and capacities. Include bypass fittings and meter bars.
  - 5. Dielectric fittings.
  
- B. Shop Drawings: For facility natural-gas piping layout. Include plans, piping layout and elevations, sections, and details for fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion joints and loops, and attachments of the same to building structure. Detail location of anchors, alignment guides, and expansion joints and loops.
  - 1. Shop Drawing Scale: 1/4 inch per foot.
  - 2. Detail mounting, supports, and valve arrangements for service meter assembly and pressure regulator assembly.

## 1.7 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans and details, drawn to scale, on which natural-gas piping is shown and coordinated with other installations, using input from installers of the items involved.
  
- B. Site Survey: Plans, drawn to scale, on which natural-gas piping is shown and coordinated with other services and utilities.
  
- C. Welding certificates.
  
- D. Field quality-control reports.

## 1.8 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For pressure regulators and service meters to include in emergency, operation, and maintenance manuals.

## 1.9 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  
- B. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

03/09/2021

- C. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Handling Flammable Liquids: Remove and dispose of liquids from existing natural-gas piping according to requirements of authorities having jurisdiction.
- B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- C. Store and handle pipes and tubes having factory-applied protective coatings to avoid damaging coating, and protect from direct sunlight.

#### 1.11 PROJECT CONDITIONS

- A. Perform site survey, research public utility records, and verify existing utility locations. Contact utility-locating service for area where Project is located.
- B. Interruption of Existing Natural-Gas Service: Do not interrupt natural-gas service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide purging and startup of natural-gas supply according to requirements indicated:
  - 1. Notify the Owner no fewer than two days in advance of proposed interruption of natural-gas service.
  - 2. Do not proceed with interruption of natural-gas service without owner's written permission.

#### 1.12 COORDINATION

- A. Coordinate sizes and locations of concrete bases with actual equipment provided.

### PART 2 - PRODUCTS

#### 2.1 PIPES, TUBES, AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
  - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
  - 2. Wrought-Steel Welding Fittings: ASTM A 234/A 234M for butt welding and socket welding.
  - 3. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.

4. Forged-Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:
    - a. Material Group: 1.1.
    - b. End Connections: Threaded or butt welding to match pipe. All pipes larger than 4" diameter, shall have welded end connections.
    - c. Lapped Face: Not permitted underground.
    - d. Gasket Materials: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral-wound metal gaskets.
    - e. Bolts and Nuts: ASME B18.2.1, carbon steel aboveground and stainless steel underground.
    - f. Joint Cover Kits: Epoxy paint, adhesive, and heat-shrink PE sleeves.
  5. Mechanical Couplings:
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following
      - 1) Dresser Piping Specialties; Division of Dresser, Inc.
      - 2) Smith-Blair, Inc.
    - b. Flanges and tubewith epoxy finish.
    - c. Buna-nitrile seals. Stainless-steel bolts, washers, and nuts.
    - d. Coupling shall be capable of joining steel pipe to steel pipe.
- B. HDPE Pipe: ASTM D 2513, SDR 11.
1. HDPE Fittings: ASTM D 2683, socket-fusion type or ASTM D 3261, butt-fusion type with dimensions matching HDPE pipe.
  2. HDPE Transition Fittings: Factory-fabricated fittings with HDPE pipe complying with ASTM D 2513, SDR 11; and steel pipe complying with ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
  3. Anodeless Service-Line Risers: Factory fabricated and leak tested.
    - a. Underground Portion: HDPE pipe complying with ASTM D 2513, SDR 11 inlet.
    - b. Casing: Steel pipe complying with ASTM A 53/A 53M, Schedule 40, black steel, Type E or S, Grade B with corrosion-protective coating covering.
    - c. Aboveground Portion: Black steel, Schedule 40 Anodeless transition riser fitting.
    - d. Outlet shall be threaded or suitable for welded connection.
    - e. Ultraviolet shield.
    - f. Stake supports with factory finish to match steel pipe casing or carrier pipe.
  4. Plastic Mechanical Couplings, NPS 1-1/2 and Smaller: Capable of joining HDPE pipe to HDPE pipe.
    - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following but are not limited to, the following :

- 1) Lyall, R. W. & Company, Inc.
  - 2) Mueller Co.; Gas Products Div.
  - 3) Perfection Corporation; a subsidiary of American Meter Company.
- b. HDPE body with molded-in, stainless-steel support ring.
  - c. Buna-nitrile seals.
  - d. Acetal collets.
  - e. Electro-zinc-plated steel stiffener.
5. Plastic Mechanical Couplings, NPS 2 and Larger: Capable of joining HDPE pipe to HDPE pipe, steel pipe to HDPE pipe.
- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following but are not limited to, the following :
    - 1) Lyall, R. W. & Company, Inc.
    - 2) Mueller Co.; Gas Products Div.
    - 3) Perfection Corporation; a subsidiary of American Meter Company.
  - b. Fiber-reinforced plastic body.
  - c. HDPE body tube.
  - d. Buna-nitrile seals.
  - e. Acetal collets.
  - f. Stainless-steel bolts, nuts, and washers.
6. Steel Mechanical Couplings: Capable of joining plain-end HDPE pipe to HDPE pipe, steel pipe to HDPE pipe, or steel pipe to steel pipe.
- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers, but are not limited to, the following:
    - 1) Dresser Piping Specialties; Division of Dresser, Inc.
    - 2) Smith-Blair, Inc.
  - b. Stainless-steel flanges and tube with epoxy finish.
  - c. Buna-nitrile seals.
  - d. Stainless-steel bolts, washers, and nuts.
  - e. Factory-installed anode for steel-body couplings installed underground.

## 2.2 PIPE SUPPORT

- A. Adjustable Pipe Saddle Support with U-Bolt: Designed to support horizontal pipe from floor stanchion. Pipe saddle with u-bolts and hex nuts shall be provided to hold pipe securely to saddle. Floor stanchion with vertical adjustable pipe support and base plate for bolting on the concrete pad. Pipe supports shall be made of carbon steel with electro-plated galvanized steel finish.

## 2.3 PIPING SPECIALTIES

- A. Appliance Flexible Connectors:
  - 1. Use Flexible Connectors supplied by the generator manufacturer.
  - 2. Operating-Pressure Rating: 0.5 psig.
  - 3. End Fittings: Zinc-coated steel.
  - 4. Threaded Ends: Comply with ASME B1.20.1.
  - 5. Maximum Length: 36 inches.
- B. Weatherproof Vent Cap: Cast- or malleable-iron increaser fitting with corrosion-resistant wire screen, with free area at least equal to cross-sectional area of connecting pipe and threaded-end connection.

## 2.4 JOINING MATERIALS

- A. Joint Compound and Tape: Suitable for natural gas.
- B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

## 2.5 MANUAL GAS SHUTOFF VALVES

- A. See "Aboveground Manual Gas Shutoff Valve Schedule" Articles for where each valve type is applied in various services.
- B. General Requirements for Metallic Valves, NPS 2 and Smaller: Comply with ASME B16.33.
  - 1. CWP Rating: 125 psig
  - 2. Threaded Ends: Comply with ASME B1.20.1.
  - 3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.
  - 4. Tamperproof Feature: Locking feature for valves indicated in "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
  - 5. Listing: Listed and labeled by an NRTL acceptable to authorities having jurisdiction for valves 1 inch (25 mm) and smaller.
  - 6. Service Mark: Valves 1-1/4 inches to NPS 2 shall have initials "WOG" permanently marked on valve body.
- C. General Requirements for Metallic Valves, NPS 2-1/2 and Larger: Comply with ASME B16.38.
  - 1. CWP Rating: 125 psig.
  - 2. Flanged Ends: Comply with ASME B16.5 for steel flanges.
  - 3. Tamperproof Feature: Locking feature for valves indicated in "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
  - 4. Service Mark: Initials "WOG" shall be permanently marked on valve body.
- D. Bronze Plug Valves: MSS SP-78.

03/09/2021

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - a. Lee Brass Company.
  - b. McDonald, A. Y. Mfg. Co.
2. Body: Bronze, complying with ASTM B 584.
3. Plug: Bronze.
4. Ends: Threaded, socket, or flanged as indicated in "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
5. Operator: Square head or lug type with tamperproof feature where indicated.
6. Pressure Class: 125 psig .
7. Listing: Valves NPS 1 and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
8. Service: Suitable for natural-gas service with "WOG" indicated on valve body..

## 2.6 PRESSURE REGULATORS

### A. General Requirements:

1. Single stage and suitable for natural gas.
2. Steel jacket and corrosion-resistant components.
3. Elevation compensator.
4. End Connections: Threaded for regulators NPS 2 and smaller; flanged for regulators NPS 2-1/2 and larger.

### B. Service Pressure Regulators: Comply with ANSI Z21.80.

1. Provide and install gas Utility Company approved service pressure regulators. Coordinate with the gas Utility Company for service pressure regulators requirements.

### C. Line Pressure Regulators: Comply with ANSI Z21.80.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers, but are not limited to, the following:
  - a. Actaris.
  - b. American Meter Company.
  - c. Eclipse Combustion, Inc.
  - d. Fisher Control Valves and Regulators; Division of Emerson Process Management.
  - e. Invensys.
  - f. Maxitrol Company.
  - g. Richards Industries; Jordan Valve Div.
2. Body and Diaphragm Case: Cast iron or die-cast aluminum.
3. Springs: Zinc-plated steel; interchangeable.
4. Diaphragm Plate: Zinc-plated steel.

5. Seat Disc: Nitrile rubber resistant to gas impurities, abrasion, and deformation at the valve port.
6. Orifice: Aluminum; interchangeable.
7. Seal Plug: Ultraviolet-stabilized, mineral-filled nylon.
8. Single-port, self-contained regulator with orifice no larger than required at maximum pressure inlet, and no pressure sensing piping external to the regulator.
9. Pressure regulator shall maintain discharge pressure setting downstream, and not exceed 150 percent of design discharge pressure at shutoff.
10. Overpressure Protection Device: Factory mounted on pressure regulator.
11. Atmospheric Vent: Factory- or field-installed, stainless-steel screen in opening if not connected to vent piping.
12. Maximum Inlet Pressure: 2 psig .

## 2.7 SERVICE METERS

- A. Service meters shall be provided by the gas utility company.
- B. Contractor shall provide and install gas Utility Company approved meter bar. Coordinate with the gas Utility Company for meter bar requirements.

## 2.8 DIELECTRIC FITTINGS

- A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.
- B. Dielectric Unions:
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers, but are not limited to, the following:
    - a. Capitol Manufacturing Company.
    - b. Central Plastics Company.
    - c. Hart Industries International, Inc.
    - d. Jomar International Ltd.
    - e. Matco-Norca, Inc.
    - f. McDonald, A. Y. Mfg. Co.
    - g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
    - h. Wilkins; a Zurn company.
  2. Description:
    - a. Standard: ASSE 1079.
    - b. Pressure Rating: 125 psig minimum at 180 deg F
    - c. End Connections: Solder-joint copper alloy and threaded ferrous.

**03/09/2021**

## 2.9 LABELING AND IDENTIFYING

- A. Detectable Warning Tape: Acid and alkali-resistant, PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.
- B. Pipe Labels: Self-adhesive pipe labels, printed plastic with contact-type, permanent-adhesive backing. Pipe label contents shall include "Natural Gas" service with yellow background and black lettering and an arrow indicating flow direction. Lettering size shall be at least 1-1/2 inches high.
- C. Valve Tags Signage: Metal tags, brass or aluminum, 4 by 4 by 0.05 inch, with stamped legend, punched for use with self-locking metal tie fastener for the gas shutoff valves.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine roughing-in for natural-gas piping system to verify actual locations of piping connections before equipment installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Close equipment shutoff valves before turning off natural gas to premises or piping section.
- B. Inspect natural-gas piping according to NFPA 54 and the New York State Fuel Gas Code to determine that natural-gas utilization devices are turned off in piping section affected.
- C. Comply with NFPA 54 and the New York State Fuel Gas Code requirements for prevention of accidental ignition.

### 3.3 OUTDOOR PIPING INSTALLATION

- A. Comply with NFPA 54 and the New York State Fuel Gas Code requirements for installation and purging of natural gas piping.
- B. Install underground, natural gas piping buried at least 24 inches below finished grade.
- C. Install underground, HDPE, natural gas piping according to ASTM D 2774.
- D. Steel Piping with Protective Coating:

03/09/2021

1. Apply joint cover kits to pipe after joining to cover, seal, and protect joints.
2. Repair damage to PE coating on pipe as recommended in writing by protective coating manufacturer.
3. Replace pipe having damaged PE coating with new pipe.

- E. Install fittings for changes in direction and branch connections.
- F. Joints for connection to inlets and outlets on regulators, and valves may be flanged or threaded to match the equipment.
- G. Pipe Support: Install pipe support with vertically adjustable pipe saddle support and u-bolt. Bolt the base plate with concrete pad using anchor bolts. Adjust vertical pipe support height to support the pipe horizontally. Install pipe saddle with u-bolts and hex nuts, to hold pipe securely to saddle

### 3.4 SERVICE-METER ASSEMBLY INSTALLATION

- A. Install service-meter assemblies aboveground on concrete bases.
- B. Install metal shutoff valves upstream from service regulators. Shutoff valves are not required at second regulators if two regulators are installed in series.
- C. Install strainer on inlet of service-pressure regulator and meter set.
- D. Install service regulators mounted outside with vent outlet horizontal or facing down. Install screen in vent outlet if not integral with service regulator.
- E. Install metal shutoff valves upstream from service meters. Install dielectric fittings downstream from service meters.
- F. Install service meters downstream from pressure regulators.

### 3.5 VALVE INSTALLATION

- A. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.

### 3.6 PIPING JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints:
1. Thread pipe with tapered pipe threads complying with ASME B1.20.1.
  2. Cut threads full and clean using sharp dies.

03/09/2021

3. Ream threaded pipe ends to remove burrs and restore full inside diameter of pipe.
4. Apply appropriate tape or thread compound to external pipe threads unless dryseal threading is specified.
5. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked.

### 3.7 CONNECTIONS

- A. Connect to utility's gas main according to utility's procedures and requirements.
- B. Install natural-gas piping electrically continuous, and bonded to gas appliance equipment grounding conductor of the circuit powering the appliance according to NFPA 70.
- C. Install piping adjacent to appliances to allow service and maintenance of appliances.
- D. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 72 inches of each gas-fired appliance and equipment. Install union between valve and appliances or equipment.
- E. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

### 3.8 LABELING AND IDENTIFYING

- A. Install detectable warning tape for underground gas piping, directly above gas piping, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.
- B. Provide self-adhesive pipe labels for above ground gas piping, printed plastic with contact-type, permanent-adhesive backing. Pipe label contents shall include "Natural Gas" service with yellow background and black lettering and an arrow indicating flow direction. Lettering size shall be at least 1-1/2 inches high.
- C. Provide valve tags signage, metal tags, brass or aluminum, 4 by 4 by 0.05 inch, with stamped legend, punched for use with self-locking metal tie fastener for the gas shutoff valves as indicated on the drawings.

### 3.9 PAINTING

- A. Paint exposed, exterior metal piping, valves, meter bars and piping specialties, except components, with factory-applied paint or protective coating.
  1. Alkyd System: MPI EXT 5.1D.
    - a. Prime Coat: Alkyd anticorrosive metal primer.
    - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.

03/09/2021

- c. Topcoat: Exterior alkyd enamel gloss.
  - d. Color: Yellow
- B. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

### 3.10 CONCRETE BASES

- A. Concrete Bases: Anchor equipment to concrete base according to manufacturer's installation instructions.
  - 1. Coordinate with concrete bases construction and dimensions with General Contractor.
  - 2. Install epoxy-coated anchor bolts for supported equipment on concrete base.
  - 3. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 4. Install anchor bolts to elevations required for proper attachment to supported equipment.
  - 5. Refer to specification Section 033000 – "Cast-In-Place Concrete", for Concrete Bases construction

### 3.11 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
  - 1. Test, inspect, and purge natural gas according to NFPA 54 and the New York State Fuel Gas Code and authorities having jurisdiction.
  - 2. Prior to acceptance and initial operation, all piping installations shall be inspected and pressure tested to determine that the materials, design, fabrication, and installation practices comply with the requirements of this code.
  - 3. New branches: Where new branches are installed to new appliances, only the newly installed branches shall be required to be pressure tested. Connections between the new piping and the existing piping shall be tested with a noncorrosive leak-detecting fluid or other approved leak-detecting methods.
  - 4. Section testing: A piping system shall be permitted to be tested as a complete unit or in sections. Under no circumstances shall a valve in a line be used as a bulkhead between gas in one section of the piping system and test medium in an adjacent section, unless two valves are installed in series with a valved "telltale" located between these valves. A valve shall not be subjected to the test pressure

unless it can be determined that the valve, including the valve-closing mechanism, is designed to safely withstand the test pressure.

5. Regulators and valve assemblies: Regulator and valve assemblies fabricated independently of the piping system in which they are to be installed shall be permitted to be tested with inert gas or air at the time of fabrication.
6. Test medium: The test medium shall be air, nitrogen, carbon dioxide or an inert gas. Oxygen shall not be used.
7. Test preparation: Pipe joints, including welds, shall be left exposed for examination during the test.
8. Appliance and equipment isolation: Appliances and equipment that are not to be included in the test shall be either disconnected from the piping or isolated by blanks, blind flanges, or caps. Flanged joints at which blinds are inserted to blank off other equipment during the test shall not be required to be tested.
9. Valve isolation: Where the piping system is connected to appliances or equipment designed for operating pressures equal to or greater than the test pressure, such appliances or equipment shall be isolated from the piping system by closing the individual appliance or equipment shutoff valve(s).
10. Testing precautions: All testing of piping systems shall be done with due regard for the safety of employees and the public during the test. Bulkheads, anchorage, and bracing suitably designed to resist test pressures shall be installed if necessary. Prior to testing, the interior of the pipe shall be cleared of all foreign material.
11. Test pressure measurement: Test pressure shall be measured with a manometer or with a pressure measuring device designed and calibrated to read, record, or indicate a pressure loss caused by leakage during the pressure test period. The source of pressure shall be isolated before the pressure tests are made. Mechanical gauges used to measure test pressures shall have a range such that the highest end of the scale is not greater than five times the test pressure.
12. Test pressure. The test pressure to be used shall be no less than 1-1/2 times the proposed maximum working pressure, but not less than 3 psig (20 kPa gauge), irrespective of design pressure. Where the test pressure exceeds 125 psig (862 kPa gauge), the test pressure shall not exceed a value that produces a hoop stress in the piping greater than 50 percent of the specified minimum yield strength of the pipe.
13. Test duration: Test duration shall be not less than 1/2 hour for each 500 cubic feet of pipe volume or fraction thereof. When testing a system having a volume less than 10 cubic feet (0.28 m<sup>3</sup>) or a system in a single-family dwelling, the test duration shall be not less than 10 minutes. The duration of the test shall not be required to exceed 24 hours.
14. Detection of leaks and defects: The piping system shall withstand the test pressure specified without showing any evidence of leakage or other defects.

Any reduction of test pressures as indicated by pressure gauges shall be deemed to indicate the presence of a leak unless such reduction can be readily attributed to some other cause.

15. Detection methods: The leakage shall be located by means of an approved gas detector, a noncorrosive leak detection fluid, or other approved leak detection methods. Matches, candles, open flames, or other methods that could provide a source of ignition shall not be used.
  16. Corrections: Where leakage or other defects are located, the affected portion of the piping system shall be repaired or replaced and retested.
- C. Natural-gas piping will be considered defective if it does not pass tests and inspections.
  - D. Prepare test and inspection reports.
  - E. Placing appliances and equipment in operation: Appliances and equipment shall be permitted to be placed in operation after the piping system has been checked for leakage and determined to be free of leakage and purged.

### 3.12 OUTDOOR PIPING SCHEDULE

- A. Underground natural-gas piping shall be of the following:
  1. HDPE pipe and fittings joined by heat-fusion, or mechanical couplings; anodeless service-line risers for transition from underground to aboveground piping.
- B. Aboveground natural-gas piping shall be of the following:
  1. Schedule 40, steel pipe with malleable-iron fittings and threaded or welded joints.
- C. Containment Conduit for Underground natural-gas Pipe: Schedule 80, PVC pipe.

### 3.13 ABOVEGROUND MANUAL GAS SHUTOFF VALVE SCHEDULE

- A. Valves for pipe sizes NPS 2 and larger at service meter shall be of the following:
  1. Bronze plug valve.
- B. Distribution piping valves for pipe sizes NPS 2 and larger shall be of the following:
  1. Bronze plug valve.
- C. Valves in branch piping for single appliance shall be of the following:
  1. Bronze plug valve.

END OF SECTION

**SECTION 260100  
GENERAL ELECTRICAL REQUIREMENTS**

**PART 1 - GENERAL**

- A. Provide all electrical equipment, systems, devices, conduit, wire and all relevant appurtenances and services for the construction as shown on the Contract Drawings and as specified herein.

**1.00 SUMMARY OF WORK**

- A. Provide natural gas and diesel fueled standby generators, electrical feeders, automatic transfer switches (ATS), branch circuit conductors and cables.
- B. Provide conduits and wiring for standby generators. Provide electrical power systems.
- C. Provide electrical equipment and devices as indicated on the drawings.
- D. Test all the equipments and devices and test the completed system for proper operation. Repair or replace any system, equipment, device or wiring found defective and repeat the test.
- E. Provide temporary power as needed.

**1.01 RELATED DOCUMENTS**

- A. Drawings and other provisions of the Contract Specifications apply to the Work of this Section.

**1.02 GENERAL CONDITIONS**

- A. Each Section within Division 26, Electrical, shall conform to the requirements of Section 260100, General Electrical Requirements.

**1.03 CONTRACT DOCUMENTS**

- A. The Contract Documents shall be as enumerated in the General Conditions, Contract Drawings and in these Specifications.

**1.04 EXAMINATION OF SITE**

- A. The Contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, and deemed to have been satisfied as to the conditions existing at the site, as relating to the actual conditions of the site, at the time estimating the Work for bid, the storage and handling of materials, and all other matters as may be incidental to the Work under the Contract, and no allowance will subsequently be made to the Contractor by reason of any error due to the Contractor's neglect to comply with the requirements of this clause.

**1.05 ELECTRICAL EQUIPMENT**

- A. All electrical equipment shall be the latest of the current year in design, material and workmanship, and shall be the type or model called for in these Specifications.
- B. If the type or model specified has been superseded by a later type or model, the latest shall be submitted for approval and shall be provided as part of the Contract.

**1.06 PERMITS AND FEES**

- 1. Contractor shall apply and pay all fees for the permits and obtain all necessary permits, final inspection certificates and approvals from all Authorities having jurisdiction.

**1.07 WORK IN EXISTING BUILDINGS**

- A. All existing material, fixtures, and equipment which have been removed shall not be used again unless specifically required by the Drawings or Specifications.
- B. Removals, Replacements, Adjustments
  - 1. The Contractor shall remove, relocate, replace, adjust or adapt, all existing conduit, wiring and other electric equipment or apparatus, as required, to provide a complete installation.
  - 2. The Work shall include, providing all materials, all necessary extensions, connections, cuttings, repairing, adapting and other Work incidental thereto, together with such temporary connections as may be required to maintain service pending the completion of the permanent Work. All Work shall be left in good working order, and in a condition equal to the adjacent new or existing Work.
  - 3. Unless otherwise indicated on the Drawings, or in the Specifications, all equipment, fixtures and materials installed shall be new and in accordance with the Drawings and Specifications.
- C. Care in Removing Existing Conductors
  - 1. The Contractor shall use due care and diligence in removing existing conductors from existing conduits in order to prevent conductors from breaking and becoming an irretrievable obstruction within the conduits. During removal of conductors, a "fish line", "snake" or other equipment shall be firmly attached to the ends of the existing conductors within the conduit so that the conductors may be pulled back to the original position if desired. The Contractor, at its own risk, may attach the newly installed conductors directly to the existing conductors for this purpose. However, any damage to the new conductors, or loss of these conductors because of the operation will not be paid for by the Owner. (To facilitate removal of conductors, the Contractor may remove 25% of the number of conductors in any conduit, and use the remaining 75% of the conductors as "pull wires").

D. Cutting and Repairing

1. Whenever the cutting, or drilling, or removal of any part of the structure (ceilings, walls, floors, partitions, etc.), is required in order to remove, relocate, alter or install any article of electrical equipment (including conduits, boxes, fittings, etc.), the Contractor shall perform all cutting, drilling, etc., and remove the section of structure required. After removal and installation of the electric equipment, the Contractor shall repair the section of structure, as directed by the Owner's Representative, with new materials, equal to that of adjacent structure of the same type.

Note that in general, all holes through existing structures for conduit installation shall be core drilled, unless prior written approval is provided by the Owner's Representative.

2. Whenever holes are cut in fire-rated walls or floor slabs in order to permit the installation of conduit or electrical equipment, these holes shall be repaired with material that will restore the fire rating of the wall or floor slab to its original condition.
3. Wherever any part of the structure is marred or damaged, the Contractor shall repair the damaged or marred areas of the structure.
4. Where a piece of electrical equipment is removed, the Contractor shall finish that part of the surface to match surroundings.

E. Damaged Apparatus

Should any damage, due to the execution of this Contract, occur to the furniture, fixtures, or any equipment or apparatus, such damage shall be properly repaired and/or replaced by the Contractor without charge.

F. Non-Interruption of Services

1. It is imperative that all existing services (electric, light, power, telecommunications, fire alarm, etc.) be kept in operation at all times, unless prior written approval is received from the Owner's Representative.
2. Approved temporary wiring to maintain services shall be provided by the Contractor as part of this Contract and removed after the need for same is obviated.

**1.08 TESTS**

- A. The Contractor shall make all tests, including insulation resistance test using a megger, required by the Owner's Representative to provide complete data which in the Owner's Representative's opinion is necessary and sufficient to prove that equipment, or any component part thereof (including wiring), meets the requirements of the Specifications.

**03/09/2021**

- B. Such tests shall be made before, during and/or after installation of the equipment, at any time convenient and suitable to the Owner's Representative.
- C. The Contractor shall provide all apparatus, meters, conductors, equipment and labor required by the Owner's Representative for such tests; shall make any and all connections necessary; shall dismantle any piece of equipment where necessary for making tests; and in other ways render all assistance necessary. After satisfactory test results have been obtained the Contractor shall remove the testing equipment and restore the site and equipment to proper operating conditions.
- D. All defects found as a result of such tests shall be immediately corrected. Defective parts, or parts found not to be in accordance with the Specifications shall be immediately replaced with proper parts, all to the satisfaction of the Owner's Representative.

**END OF SECTION**

03/09/2021

## SECTION 260519 - ELECTRICAL CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including other specification sections apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.
  - 2. Connectors, splices, and terminations rated 600 V and less.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 CONDUCTORS AND CABLES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to the following manufacturers.
  - 1. American Insulated Wire Corp.; a Leviton Company.
  - 2. General Cable Corporation.
  - 3. Senator Wire & Cable Company.
  - 4. Southwire Company.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

**03/09/2021**

- C. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors Material: Copper, complying with NEMA WC 70/ICEA S-95-658.
- E. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN/THWN-2.
- F. Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC with ground wire.

## 2.2 CONNECTORS AND SPLICES

- A. Manufacturers:
  - 1. AFC Cable Systems, Inc.
  - 2. AMP Incorporated/Tyco International.
  - 3. Hubbell/Anderson.
  - 4. O-Z/Gedney; EGS Electrical Group LLC.
  - 5. 3M Company; Electrical Products Division.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, and marked for intended location and application. Match ratings of conductor and cables to be connected and spliced.

## PART 3 - EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Underground and exposed feeders: Type THHN/THWN-2, single conductors in raceway.
- D. Underground and exposed Branch Circuits: Type THHN/THWN-2, single conductors in raceway.
- E. Interior concealed feeders and Branch Circuits: Type THHN/THWN-2, single conductors in raceway.
- F. Class 1 & 2 Control Circuits: Type THHN/THWN-2, in raceway

### 3.2 INSTALLATION OF CONDUCTORS AND CABLES

- A. Install underground and exposed feeders and branch circuits as indicated.
- B. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- C. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- D. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- E. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- F. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- G. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."
- H. Seal around cables penetrating fire-rated and exterior building elements. Provide water seal and cable in conduit bushing for exterior wall penetrations.

### 3.3 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
  - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

### 3.4 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

03/09/2021

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078400 - "Firestopping"

3.7 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test conductors and cables for compliance with requirements.
  - 2. Perform each of the following visual and electrical tests:
    - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
    - b. Test bolted connections for high resistance using one of the following:
      - 1) A low-resistance ohmmeter.
      - 2) Calibrated torque wrench.
      - 3) Thermographic survey.
    - c. Inspect compression applied connectors for correct cable match and indentation.
    - d. Inspect for correct identification.
    - e. Inspect cable jacket and condition.
    - f. Insulation-resistance test on each conductor with respect to ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
    - g. Continuity test on each conductor and cable.
    - h. Uniform resistance of parallel conductors.
- B. Cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports to record the following:
  - 1. Procedures used.
  - 2. Results that comply with requirements.
  - 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

END OF SECTION

## SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:
  - 1. Grounding for equipment and noncurrent-carrying metal items.
  - 2. Grounding for sensitive electronic equipment.
  - 3. Ground rods.
- C. Field quality-control test reports.

#### 1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

## PART 2 - PRODUCTS

### 2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

### 2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
  - 1. Pipe Connectors: Clamp type, sized for pipe.

### 2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad 5/8" by 8'-0".

## PART 3 - EXECUTION

### 3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- B. Conductor Terminations and Connections:
  - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
  - 2. Underground Connections: Exothermic welded connectors, except at test wells and as otherwise indicated.
  - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
  - 4. Connections to Structural Steel: Exothermic welded connectors.

### 3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
  2. Receptacle circuits.
  3. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the distribution panel to equipment grounding bar terminal on busway.
- C. Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

### 3.3 GROUNDING FOR GENERATOR

- A. Generator: Install two grounding electrode(s) at the generator location. The electrodes shall be connected to the equipment grounding conductor and to the frame of the generator by #4 AWG ground conductors. The generator is not a separately derived system. Bond existing electrical service equipment grounding conductor to the generator grounding.

### 3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
  2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
  3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

### 3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

**03/09/2021**

2. Verify point-to-point resistance between ground connections from all new equipment frames to existing ground bus in existing panel. Investigate and correct any values that exceed 1 ohm.

END OF SECTION

**SECTION 260529  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Hangers and supports for electrical equipment and systems.

**1.3 DEFINITIONS**

- A. EMT: Electrical metallic tubing.
- B. RGS: Rigid galvanized steel conduit.

**1.4 PERFORMANCE REQUIREMENTS**

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

**1.5 SUBMITTALS**

- A. Product Data: For the following:
  - 1. Steel slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
  - 1. Trapeze hangers. Include Product Data for components.
  - 2. Steel slotted channel systems. Include Product Data for components.

3. Equipment supports.

C. Welding certificates.

### **1.6 QUALITY ASSURANCE**

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

### **1.7 COORDINATION**

A. Coordinate work with other trades.

## **PART 2 - PRODUCTS**

### **2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS**

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Allied Tube & Conduit.
- b. Cooper B-Line, Inc.; a division of Cooper Industries.
- c. ERICO International Corporation.
- d. GS Metals Corp.
- e. Thomas & Betts Corporation.
- f. Unistrut; Tyco International, Ltd.
- g. Wesanco, Inc.

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.

3. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical

03/09/2021

conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
  - 1. Powder-Actuated Fasteners shall not be allowed.
  - 2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
    - a. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
      - 2) Empire Tool and Manufacturing Co., Inc.
      - 3) Hilti Inc.
      - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      - 5) MKT Fastening, LLC.
  - 3. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
  - 4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
  - 5. Toggle Bolts: All-steel springhead type.
  - 6. Hanger Rods: Threaded steel.

## 2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Hot-dip galvanized steel.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, and RGS as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 1. Secure raceways and cables to these supports with two-bolt conduit clamps.

### **3.2 SUPPORT INSTALLATION**

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RGS may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
  - 2. To Existing Concrete: Expansion anchor fasteners.
  - 3. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
  - 4. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
  - 5. To Light Steel: Sheet metal screws.
  - 6. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, and other devices on slotted-channel racks attached to substrate by means that meet anchorage requirements.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

03/09/2021

### 3.3 PAINTING

- A. Touchup: Clean field welds, bolted connections and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION



**03/09/2021**

## SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including other sections in the Specifications, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Metal conduits, tubing, and fittings.
  - 2. Boxes, enclosures, and cabinets.

#### 1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. RGS: Rigid Galvanized Steel Conduit.
- C. FMC: Flexible metal conduit.
- D. LFMC: Liquidtight flexible metal conduit.

#### 1.4 SUBMITTALS

- A. Product Data: For raceways, wireways and fittings, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.
- C. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:
  - 1. Structural members in paths of conduit groups with common supports.
  - 2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
- D. Source quality-control reports.

**03/09/2021**

**1.5 QUALITY ASSURANCE**

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

**PART 2 - PRODUCTS**

**2.1 METAL CONDUITS, TUBING, AND FITTINGS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following.
  - 1. AFC Cable Systems, Inc.
  - 2. Alflex Inc.
  - 3. Allied Tube & Conduit; a Tyco International Ltd. Co.
  - 4. Anamet Electrical, Inc.; Anaconda Metal Hose.
  - 5. Electri-Flex Co.
  - 6. Manhattan/CDT/Cole-Flex.
  - 7. Maverick Tube Corporation.
  - 8. O-Z Gedney; a unit of General Signal.
  - 9. Wheatland Tube Company.
- B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. RGS: Comply with ANSI C80.1 and UL 6.
- D. EMT: Comply with ANSI C80.3 and UL 797.
- E. FMC: Comply with UL 1; zinc-coated steel.
- F. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- G. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
  - 1. Fittings for EMT:
    - a. Material: Steel.
    - b. Type: compression.
  - 2. Expansion Fittings: steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

03/09/2021

- H. Joint Compound for RGS: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

## 2.2 BOXES, ENCLOSURES, AND CABINETS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following.
  - 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
  - 2. EGS/Appleton Electric.
  - 3. Hoffman.
  - 4. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
  - 5. O-Z/Gedney; a unit of General Signal.
  - 6. Robroy Industries, Inc.; Enclosure Division.
  - 7. Scott Fetzer Co.; Adalet Division.
  - 8. Spring City Electrical Manufacturing Company.
  - 9. Thomas & Betts Corporation.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A, Type 1 and Type 3R.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1, Type 1 and Type 3R.
- F. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- G. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 and Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.
  - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
  - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
  - 3. .
  - 4. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

## 2.3 SLEEVES FOR RACEWAYS

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

**03/09/2021**

- B. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Firestopping."

## 2.4 SLEEVE SEALS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Advance Products & Systems, Inc.
  - 2. Calpico, Inc.
  - 3. Metraflex Co.
  - 4. Pipeline Seal and Insulator, Inc.
- B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

## PART 3 - EXECUTION

### 3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed Conduit: RGS; Rigid galvanized steel conduit.
  - 2. Connection to Vibrating Equipment (Including Motor-Driven Equipment): LFMC.
  - 3. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
  - 1. Exposed, Not Subject to Physical Damage: EMT.
  - 2. Exposed and Subject to Severe Physical Damage: RGS; Rigid galvanized steel conduit.
  - 3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
  - 4. Connection to Vibrating Equipment (Including Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  - 5. Damp or Wet Locations: RGS.
  - 6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
  - 1. Rigid Galvanized Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  - 2. EMT: Use compression fittings. Comply with NEMA FB 2.10.

3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

### 3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- E. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- H. Support conduit within 12 inches of enclosures to which attached.
- I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- L. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- M. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- N. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

- O. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Retain "Surface Raceways" Paragraph below if applicable.
- P. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- Q. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
  - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
  - 2. Where an underground service raceway enters a building or structure.
  - 3. Where otherwise required by NFPA 70.
- R. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
  - 1. Use LFMC in damp or wet locations.
- S. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- T. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

### 3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies.
- B. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 7 Section "Firestopping."
- C. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs.
- D. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- E. Install to seal underground, exterior wall penetrations.
- F. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

**03/09/2021**

**3.4 FIRESTOPPING**

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078400 "Firestopping."

**3.5 PROTECTION**

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

**END OF SECTION 260533**

**03/11/2021**

**SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS.**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Conduit, ducts, and duct accessories.
  - 2. Handholes and boxes.

**1.3 DEFINITION**

- A. RNC: Rigid nonmetallic conduit (PVC).

**1.4 ACTION SUBMITTALS**

- A. Product Data: For the following:
  - 1. Duct-bank materials, including separators and miscellaneous components.
  - 2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
  - 3. Warning tape.
- B. Shop Drawings: For the following:
  - 1. Factory-Fabricated Handholes and Boxes:
    - a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
    - b. Include duct entry provisions, including locations and duct sizes.
    - c. Include cover design.
    - d. Include grounding details.
    - e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

**1.5 INFORMATIONAL SUBMITTALS**

- A. Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.

**03/11/2021**

1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
2. Drawings shall be signed and sealed by a qualified professional engineer.

B. Qualification Data: For professional engineer.

C. Source quality-control test reports.

D. Field quality-control test reports.

#### 1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Comply with ANSI C2.

C. Comply with NFPA 70.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

B. Store precast concrete and other factory-fabricated underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.

C. Lift and support precast concrete units only at designated lifting or supporting points.

#### 1.8 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Construction Manager and Owner no fewer than five (5) days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

#### 1.9 COORDINATION

A. Coordinate layout and installation of ducts with final arrangement of other utilities, site grading, and surface features as determined in the field.

B. Coordinate elevations of ducts and duct-bank entrances into boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features.

**03/11/2021**

**1.10 EXTRA MATERIALS**

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
- B. Furnish cable-support stanchions, arms, and associated fasteners in quantities equal to 5 percent of quantity of each item installed.

**PART 2 - PRODUCTS**

**2.1 CONDUIT**

- A. RNC: NEMA TC 2, Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following or a comparable product by one of the following:
  - 1. ARNCO Corp.
  - 2. Condux International, Inc.
  - 3. ElecSys, Inc.
  - 4. Lamson & Sessions; Carlon Electrical Products.
- C. Conduit Accessories:
  - 1. Conduit Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and size of Conduits with which used, and selected to provide minimum conduit spacing indicated while supporting conduits during backfilling.

**2.2 LABELING AND IDENTIFYING**

- A. Detectable Warning Tape: Acid and alkali-resistant PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.
- B. Install detectable warning tape directly above electric and gas piping, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

**2.3 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING**

- A. General Requirements for Handholes and Boxes:
  - 1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
  - 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  - 3. Boxes and handholes shall be rated for SCTE 77, Tier 15.

03/11/2021

- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hubbell Lenoir City, Inc. - QUAZITE underground Enclosures.
    - b. Oldcastle Precast, Inc. - CHRISTY and BROOKS concrete handholes and boxes.
    - c. MacLean Highline - concrete handholes and boxes.
  2. Standard: Comply with SCTE 77, Tier 15.
  3. Configuration: Designed for flush burial with integral closed bottom unless otherwise indicated.
  4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
  5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  6. Cover Legend: Molded lettering, "**ELECTRIC.**"
  7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
  8. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

#### 2.4 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
1. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
  3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

### PART 3 - EXECUTION

#### 3.1 UNDERGROUND CONDUIT APPLICATION

- A. Conduits for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-80-PVC, in direct-buried duct bank, unless otherwise indicated.

#### 3.2 EARTHWORK

- A. Excavation and Backfill: Comply with Section 312220 "Excavation, Trenching and Backfilling," but do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work.

**03/11/2021**

Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

- C. Cut and patch existing pavement in the path of underground ducts and utility structures according to Section 312220 "Excavation, Trenching and Backfilling".

### 3.3 CONDUIT INSTALLATION

- A. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 4 feet, both horizontally and vertically, at other locations, unless otherwise indicated.
- B. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.
- C. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit within 18" of outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- D. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig (1.03-MPa) hydrostatic pressure.
- E. Pulling Cord: Install 100-lbf- (445-N) test nylon cord in ducts, including spares.

### 3.4 INSTALLATION OF HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting ducts, to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of ducts, and seal joint between box and extension as recommended by manufacturer.
- B. Support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: Set covers of other handholes 1 inch above finished grade.
- D. Install handholes and boxes with bottom below frost line, 4 feet below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions and cable arms, as required for installation and support of cables and conductors and as indicated.
- F. Field cut openings for ducts and conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

### 3.5 FIELD QUALITY CONTROL

**03/11/2021**

- A. Perform the following tests and inspections and prepare test reports:
  - 1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
  - 2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
  - 3. Test grounding to ensure electrical continuity of grounding and bonding connections.
- B. Correct deficiencies and retest as specified above to demonstrate compliance.

### 3.5 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

END OF SECTION 260543



**SECTION 260553  
IDENTIFICATION FOR ELECTRICAL SYSTEMS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Identification for raceways.
  - 2. Identification of power and control cables.
  - 3. Identification for conductors.
  - 4. Warning labels and signs.
  - 5. Instruction signs.
  - 6. Equipment identification labels.
  - 7. Miscellaneous identification products.

**1.3 SUBMITTALS**

- A. Product Data: For each electrical identification product indicated.
- B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.
- C. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

**1.4 QUALITY ASSURANCE**

- A. Comply with ANSI A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

**1.5 COORDINATION**

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

## **PART 2 - PRODUCTS**

### **2.1 POWER RACEWAY IDENTIFICATION MATERIALS**

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.
- B. Colors for Raceways Carrying Circuits at 600 V or Less:
  - 1. Black letters on an orange field.
  - 2. Legend: Indicate voltage and system or service type.
- C. Colors for Raceways Carrying Circuits at More Than 600 V:
  - 1. Black letters on an orange field.
  - 2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch high letters on 20-inch centers.
- D. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- E. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
  - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
  - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

### **2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS**

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

- D. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

### **2.3 CONDUCTOR IDENTIFICATION MATERIALS**

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label. Preprinted labels shall include panel board identification and circuit number information.
- C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- D. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

### **2.4 WARNING LABELS AND SIGNS**

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.
- C. Baked-Enamel Warning Signs:
  - 1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
  - 2. 1/4-inch grommets in corners for mounting.
  - 3. Nominal size, 7 by 10 inches.

### **2.5 INSTRUCTION SIGNS**

- A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.
  - 1. Engraved legend with black letters on white face.
  - 2. Punched or drilled for mechanical fasteners.
  - 3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

- B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

## 2.6 EQUIPMENT IDENTIFICATION LABELS

- A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.
- B. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a black background. Minimum letter height shall be 3/8 inch.
- C. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 2 inch.

## 2.7 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch.
  - 2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
  - 3. Temperature Range: Minus 40 to plus 185 deg F.
  - 4. Color: Black except where used for color-coding.
- B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch.
  - 2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
  - 3. Temperature Range: Minus 40 to plus 185 deg F.
  - 4. Color: Black.
- C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.
  - 1. Minimum Width: 3/16 inch.
  - 2. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
  - 3. UL 94 Flame Rating: 94V-0.
  - 4. Temperature Range: Minus 50 to plus 284 deg F.
  - 5. Color: Black.

## 2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in Division 9 painting Sections for paint materials and

03/11/2021

application requirements. Select paint system applicable for surface material and location (exterior or interior).

- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- F. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.
- G. Painted Identification: Comply with requirements in Division 9 painting Sections for surface preparation and paint application.

#### **3.2 IDENTIFICATION SCHEDULE**

- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30A, and 120V to ground: Identify with self-adhesive vinyl label. Install labels at 30-foot maximum intervals.
- B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
  - 1. Emergency Power.
  - 2. Power.
  - 3. UPS.
- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, and handholes, use color-coding conductor tape to identify the phase.

**03/11/2021**

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.
  - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
  - b. Colors for 208/120-V Circuits:
    - 1) Phase A: Black.
    - 2) Phase B: Red.
    - 3) Phase C: Blue.
    - 4) Neutral: White
  - d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.
- E. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
- F. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
  1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
  2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
  3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- G. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power: Self-adhesive warning labels or Baked-enamel warning signs.
  1. Comply with 29 CFR 1910.145.
  2. Identify system voltage with black letters on an orange background.
  3. Apply to exterior of door, cover, or other access.
- H. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

03/11/2021

- I. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch high letters for emergency instructions at equipment used for power transfer operations.
- J. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, and alarm systems unless equipment is provided with its own identification.
  - 1. Labeling Instructions:
    - a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch high letters on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high.
    - b. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.
  - 2. Equipment to Be Labeled:
    - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be engraved, laminated acrylic or melamine label.
    - b. Enclosures and electrical cabinets.

END OF SECTION 260553



**03/11/2021**

## SECTION 260573 - OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes computer-based, overcurrent protective device coordination studies to determine overcurrent protective devices and to determine overcurrent protective device settings for selective tripping.
  - 1. Coordination of series-rated devices is permitted where indicated on Drawings.

#### 1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- D. SCCR: Short-circuit current rating.
- E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals may be in digital form.
  - 1. Coordination-study input data, including completed computer program input data sheets.

03/11/2021

2. Study and equipment evaluation reports.
3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer.
  - a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Engineer for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Coordination Study Software Developer, Coordination Study Specialist and Field Adjusting Company.
- B. Product Certificates: For overcurrent protective device coordination study software, certifying compliance with IEEE 399.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For the overcurrent protective devices to include in emergency, operation, and maintenance manuals.
  1. In addition to items specified in Section 017823 " Operation and Maintenance Manuals," include the following:
    - a. The following parts from the Protective Device Coordination Study Report:
      - 1) One-line diagram.
      - 2) Protective device coordination study.
      - 3) Time-current coordination curves.
    - b. Power system data.

#### 1.7 QUALITY ASSURANCE

- A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.
- B. Coordination Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
  1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.

- C. Coordination Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state of New York. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- D. Field Adjusting Company Qualifications: A Company, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

## PART 2 - PRODUCTS

### 2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Available Computer Software Developers: Subject to compliance with requirements, companies offering computer software programs that may be used in the Work include, but are not limited to, the following:
  - 1. CGI CYME.
  - 2. EDSA Micro Corporation.
  - 3. ESA Inc.
  - 4. Operation Technology, Inc.
  - 5. SKM Systems Analysis, Inc.
- B. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- C. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.
  - 1. Optional Features:
    - a. Arcing faults.
    - b. Simultaneous faults.
    - c. Explicit negative sequence.
    - d. Mutual coupling in zero sequence.
    - e.

### 2.2 PROTECTIVE DEVICE COORDINATION STUDY REPORT CONTENTS

- A. Executive summary.
- B. Study descriptions, purpose, basis and scope. Include case descriptions, definition of terms and guide for interpretation of the computer printout.

- C. One-line diagram, showing the following:
  - 1. Protective device designations and ampere ratings.
  - 2. Cable size and lengths.
  - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
  - 4. Motor and generator designations and kVA ratings.
  - 5. Switchgear, switchboard and panelboard designations.
- D. Study Input Data: As described in "Power System Data" Article.
- E. Short-Circuit Study Output: As specified in "Short-Circuit Fault-Current Study" Paragraph.
- F. Protective Device Coordination Study:
  - 1. Report recommended settings of protective devices, ready to be applied in the field. Use manufacturer's data sheets for recording the recommended setting of overcurrent protective devices when available.
    - a. Phase and Ground Relays:
      - 1) Device tag.
      - 2) Relay current transformer ratio and tap, time dial, and instantaneous pickup value.
      - 3) Recommendations on improved relaying systems, if applicable.
    - b. Circuit Breakers:
      - 1) Adjustable pickups and time delays (long time, short time, ground).
      - 2) Adjustable time-current characteristic.
      - 3) Adjustable instantaneous pickup.
      - 4) Recommendations on improved trip systems, if applicable.
    - c. Fuses: Show current rating, voltage, and class.
- G. Time-Current Coordination Curves: Determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:
  - 1. Device tag and title, one-line diagram with legend identifying the portion of the system covered.
  - 2. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
  - 3. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
  - 4. Plot the following listed characteristic curves, as applicable:
    - a. Power utility's overcurrent protective device.

- b. Low-voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.
  - c. Low-voltage equipment circuit-breaker trip devices, including manufacturer's tolerance bands.
  - d. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.
  - e. Cables and conductors damage curves.
  - f. Ground-fault protective devices.
  - g. Motor-starting characteristics and motor damage points.
  - h. Generator short-circuit decrement curve and generator damage point.
  - i. The largest feeder circuit breaker in each panelboard.
5. Series rating on equipment allows the application of two series interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Both devices share in the interruption of the fault and selectivity is sacrificed at high fault levels. Maintain selectivity for tripping currents caused by overloads.
  6. Provide adequate time margins between device characteristics such that selective operation is achieved.
  7. Comments and recommendations for system improvements.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings.
  1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

### 3.2 SHORT-CIRCUIT FAULT-CURRENT STUDY

- A. Calculate the maximum available short-circuit current in amperes rms symmetrical at circuit-breaker positions of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit at each of the following:
  1. Switchgear and switchboard bus.
  2. Motor controller.
  3. Distribution panelboard.
  4. Branch circuit panelboard.
- B. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Include studies of system-

switching configurations and alternate operations that could result in maximum fault conditions.

- C. Calculate momentary and interrupting duties on the basis of maximum available fault current.
- D. Calculations to verify interrupting ratings of overcurrent protective devices shall comply with IEEE 141, IEEE 241 and IEEE 242.
  - 1. Transformers:
    - a. ANSI C57.12.10.
    - b. ANSI C57.12.22.
    - c. ANSI C57.12.40.
    - d. IEEE C57.12.00.
    - e. IEEE C57.96.
  - 2. Low-Voltage Circuit Breakers: IEEE 1015 and IEEE C37.20.1.
  - 3. Low-Voltage Fuses: IEEE C37.46.
- E. Study Report:
  - 1. Show calculated X/R ratios and equipment interrupting rating (1/2-cycle) fault currents on electrical distribution system diagram.
- F. Equipment Evaluation Report:
  - 1. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
  - 2. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
  - 3. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

### 3.3 PROTECTIVE DEVICE COORDINATION STUDY

- A. Comply with IEEE 242 for calculating short-circuit currents and determining coordination time intervals.
- B. Comply with IEEE 399 for general study procedures.
- C. The study shall be based on the device characteristics supplied by device manufacturer.
- D. The extent of the electrical power system to be studied is indicated on Drawings.

- E. Begin analysis at the service, extending down to the system overcurrent protective devices as follows:
  - 1. To normal system low-voltage load buses where fault current is 10 kA or less.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and protection recommendations in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.
- H. Generator Protection: Select protection according to manufacturer's written recommendations and to IEEE 242.
- I. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.
  - 1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.
- J. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault and single line-to-ground fault at each of the following:
  - 1. Electric utility's supply termination point.
  - 2. Switchgear.
  - 3. Low-voltage switchgear.
  - 4. Standby generators and automatic transfer switches.
  - 5. Branch circuit panelboards.
- K. Protective Device Evaluation:
  - 1. Evaluate equipment and protective devices and compare to short-circuit ratings.
  - 2. Adequacy of switchgear and panelboard bus bars to withstand short-circuit stresses.
  - 3. Any application of series-rated devices shall be recertified, complying with requirements in NFPA 70.

### 3.4 LOAD-FLOW AND VOLTAGE-DROP STUDY

- A. Perform a load-flow and voltage-drop study to determine the steady-state loading profile of the system. Analyze power system performance two times as follows:

1. Determine load-flow and voltage drop based on full-load currents obtained in "Power System Data" Article.
2. Determine load-flow and voltage drop based on 80 percent of the design capacity of the load buses.
3. Prepare the load-flow and voltage-drop analysis and report to show power system components that are overloaded, or might become overloaded; show bus voltages that are less than as prescribed by NFPA 70.

### 3.5 MOTOR-STARTING STUDY

- A. Perform a motor-starting study to analyze the transient effect of the system's voltage profile during motor starting. Calculate significant motor-starting voltage profiles and analyze the effects of the motor starting on the power system stability.
- B. Prepare the motor-starting study report, noting light flicker for limits proposed by IEEE 141 and voltage sags so as not to affect the operation of other utilization equipment on the system supplying the motor.

### 3.6 POWER SYSTEM DATA

- A. Obtain all data necessary for the conduct of the overcurrent protective device study.
  1. Verify completeness of data supplied in the one-line diagram on Drawings. Call discrepancies to the attention of the Engineer.
  2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.
  3. For existing equipment, whether or not relocated obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.
- B. Gather and tabulate the following input data to support coordination study. The list below is a guide. Comply with recommendations in IEEE 551 for the amount of detail required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
  1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
  2. Electrical power utility impedance at the service.
  3. Power sources and ties.
  4. Short-circuit current at each system bus, three phase and line-to-ground.
  5. Full-load current of all loads.
  6. Voltage level at each bus.

7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
8. For reactors, provide manufacturer and model designation, voltage rating, and impedance.
9. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
10. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.
11. For relays, provide manufacturer and model designation, current transformer ratios, potential transformer ratios, and relay settings.
12. Maximum demands from service meters.
13. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.
14. Motor horsepower and NEMA MG 1 code letter designation.
15. Low-voltage cable sizes, lengths, number, conductor material, and conduit material (magnetic or nonmagnetic).
16. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:
  - a. Special load considerations, including starting inrush currents and frequent starting and stopping.
  - b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
  - c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
  - d. Generator thermal-damage curve.
  - e. Ratings, types, and settings of utility company's overcurrent protective devices.
  - f. Special overcurrent protective device settings or types stipulated by utility company.
  - g. Time-current-characteristic curves of devices indicated to be coordinated.
  - h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
  - i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.
  - j. Panelboards, switchboards ampacity, and SCCR in amperes rms symmetrical.
  - k. Identify series-rated interrupting devices for a condition where the available fault current is greater than the interrupting rating of the downstream equipment. Obtain device data details to allow verification that series application of these devices complies with NFPA 70 and UL 489 requirements.

3.7 FIELD ADJUSTING

- A. Adjust relay and protective device settings according to the recommended settings provided by the coordination study. Field adjustments shall be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion or by a Company, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, hired and paid by the Electrical Contractor.
- B. Make minor modifications to equipment as required to accomplish compliance with short-circuit and protective device coordination studies.
- C. Testing and adjusting shall be by a full-time employee of the Field Adjusting Company, who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.
  - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Perform NETA tests and inspections for all adjustable overcurrent protective devices.

3.8 DEMONSTRATION

- A. Engage the Coordination Study Specialist to train Owner's maintenance personnel in the following:
  - 1. Acquaint personnel in the fundamentals of operating the power system in normal and emergency modes.
  - 2. Hand-out and explain the objectives of the coordination study, study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpreting the time-current coordination curves.
  - 3. Adjust, operate, and maintain overcurrent protective device settings.

END OF SECTION 260573

## **SECTION 262416 - PANELBOARDS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Distribution panelboards.
  - 2. Lighting and appliance branch-circuit panelboards.
  - 3. Provide branch circuit breakers in existing panelboards.

#### **1.3 DEFINITIONS**

- A. ATS: Acceptance testing specification.
- B. GFCI: Ground-fault circuit interrupter.
- C. GFEP: Ground-fault equipment protection.
- D. HID: High-intensity discharge.
- E. MCCB: Molded-case circuit breaker.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of panelboard.
  - 1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
  - 2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
  - 1. Include dimensioned plans, elevations, sections, and details.
  - 2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
  - 3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.

4. Detail bus configuration, current, and voltage ratings.
5. Short-circuit current rating of panelboards and overcurrent protective devices.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include wiring diagrams for power, signal, and control wiring.
8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Include an Internet link for electronic access to downloadable PDF of the coordination curves.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Data: For testing agency.
- B. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

## 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
  1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
  2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

## 1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Keys: **Two** spares for each type of panelboard cabinet lock.
  2. Circuit Breakers Including GFCI and GFEP Types: **Two** spares for each panelboard.
  3. Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
  4. Fuses for Fused Power-Circuit Devices: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.

## 1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001 or 9002 certified.

03/11/2021

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.
- B. Handle and prepare panelboards for installation according to NEMA PB 1.

## 1.10 FIELD CONDITIONS

- A. Environmental Limitations:
  - 1. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
    - a. Ambient Temperature: Not exceeding minus 22 deg F to plus 104 deg F.
    - b. Altitude: Not exceeding 6600 feet.
- B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  - 1. Notify Construction Manager and Owner no fewer than three days in advance of proposed interruption of electric service.
  - 2. Do not proceed with interruption of electric service without Construction Manager's written permission.
  - 3. Comply with NFPA 70E.

## 1.11 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.
  - 1. Panelboard Warranty Period: 18 months from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PANELBOARDS COMMON REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA PB 1.
- C. Comply with NFPA 70.
- D. Enclosures: Flush and Surface mounted, dead-front cabinets.

1. Rated for environmental conditions at installed location.
  - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
  - b. Outdoor Locations: NEMA 250, Type 3R.
  - c. Kitchen, Wash-Down Areas: NEMA 250, Type 4X.
2. Height: 84 inches maximum.
3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims shall cover all live parts and shall have no exposed hardware.
4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
5. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
6. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
7. Finishes:
  - a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
  - b. Back Boxes: Same finish as panels and trim.
  - c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.

E. Incoming Mains:

1. Location: Top.
2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.

F. Phase, Neutral, and Ground Buses:

1. Material: Hard-drawn copper, 98 percent conductivity.
  - a. Bus shall be fully rated the entire length.
2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
4. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.

G. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Terminations shall allow use of 90 deg C rated conductors without derating.

3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
  4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
  5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
  6. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
  7. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
  8. Gutter-Tap Lugs: Mechanical type suitable for use with conductor material and with matching insulating covers. Locate at same end of bus as incoming lugs or main device.
- H. NRTL Label: Panelboards shall be labeled by an NRTL acceptable to authority having jurisdiction for use as service equipment with one or more main service disconnecting and overcurrent protective devices.
- I. Future Devices: Panelboards shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
1. Percentage of Future Space Capacity: 20 percent.
- J. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.
1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.
  2. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V shall have short-circuit ratings as shown on Drawings, but not less than 14,000 A rms symmetrical.

## 2.2 DISTRIBUTION PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  3. Siemens Energy & Automation, Inc.
  4. Square D; a brand of Schneider Electric.
  5. Or approved equal.
  6. Match circuit breaker type and manufacturer with existing circuit breakers in existing panelboards.
- B. Panelboards: NEMA PB 1, distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

1. For doors more than 36 inches high, provide two latches, keyed alike.
- D. Mains: Circuit breaker or Lugs only, as indicated on the drawings.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers.

### 2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers:
  1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  3. Siemens Energy & Automation, Inc.
  4. Square D; a brand of Schneider Electric.
  5. Or approved equal.
  6. Match circuit breaker type and manufacturer with existing circuit breakers in existing panelboards.
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker or Lugs only, as indicated on the drawings.
- D. Branch Overcurrent Protective Devices: **Bolt-on** circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

### 2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers:
  1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  3. Siemens Energy & Automation, Inc.
  4. Square D; a brand of Schneider Electric.
  5. Match circuit breaker type and manufacturer with existing circuit breakers in existing panelboards.
- B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
  1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits.

- a. Inverse time-current element for low-level overloads.
  - b. Instantaneous magnetic trip element for short circuits.
  - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 150 A and larger.
2. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
    - a. Standard frame sizes, trip ratings, and number of poles.
    - b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
    - c. Breaker handle indicates tripped status.
  3. Provide branch circuit breakers in existing panelboards, as indicated.

## 2.5 IDENTIFICATION

- A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.
- B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.
- C. Circuit Directory: Computer-generated circuit directory mounted inside panelboard door, mounted in metal frame with transparent protective cover.
  1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

## 2.6 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.

**03/11/2021**

- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Comply with NECA 1.
- C. Install panelboards and accessories according to NEMA PB 1.1.
- D. Equipment Mounting:
  - 1. Attach panelboard to the vertical finished or structural surface behind the panelboard.
- E. Mount top of trim 72 inches maximum above finished floor unless otherwise indicated.
- F. Mount panelboard cabinet plumb and rigid without distortion of box.
- G. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- H. Mount surface-mounted panelboards to steel slotted supports 1 1/4 inch in depth. Orient steel slotted supports vertically.
- I. Install overcurrent protective devices not already factory installed.
  - 1. Set field-adjustable, circuit-breaker trip ranges.
  - 2. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.
- J. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
- K. Install filler plates in unused spaces.
- L. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.
- M. Mount spare fuse cabinet in accessible location.

### 3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- E. Install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems" identifying source of remote circuit.

### 3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
  - 1. Inspect components, assemblies, and equipment installations, including connections.
- B. Acceptance Testing Preparation:
  - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
  - 2. Test continuity of each circuit.
- C. Tests and Inspections:
  - 1. Perform each visual and mechanical inspection and electrical functional test for low-voltage molded case breakers.
  - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
  - 3. Perform the following infrared scan tests and inspections and prepare reports:
    - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
    - b. Instruments and Equipment:

03/11/2021

1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

- D. Panelboards will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

### **3.5 ADJUSTING**

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges as indicated.
- C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes. Prior to making circuit changes to achieve load balancing, inform Architect of effect on phase color coding.
  - 1. Measure loads during period of normal facility operations.
  - 2. Perform circuit changes to achieve load balancing outside normal facility operation schedule or at times directed by the Construction Manager.
  - 3. After changing circuits to achieve load balancing, recheck loads during normal facility operations. Record load readings before and after changing circuits to achieve load balancing.
  - 4. Tolerance: Maximum difference between phase loads, within a panelboard, shall not exceed 20 percent.

END OF SECTION 262416

## **SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Nonfusible switches.
  - 2. Molded-case circuit breakers (MCCBs).
  - 3. Enclosures.

#### **1.3 DEFINITIONS**

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

#### **1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
  - 1. Enclosure types and details for types other than NEMA 250, Type 1 and Type 3R.
  - 2. Current and voltage ratings.
  - 3. Short-circuit current ratings (interrupting and withstand, as appropriate).
  - 4. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
  - 5. Include time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.
- B. Shop Drawings: For enclosed switches and circuit breakers.
  - 1. Include plans, elevations, sections, details, and attachments to other work.

03/11/2021

2. Include wiring diagrams for power, signal, and control wiring.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

## 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals.
  1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
    - a. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
    - b. Time-current coordination curves for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.

## 1.7 FIELD CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
  1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
  2. Altitude: Not exceeding 6600 feet.

## 1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.
  1. Warranty Period: One year from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 GENERAL REQUIREMENTS

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.

03/11/2021

- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with NFPA 70.

## 2.2 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - 3. Siemens Energy & Automation, Inc.
  - 4. Square D; a brand of Schneider Electric.
- B. Type HD, Heavy Duty, Three Pole, Single Throw, **600-V ac**, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- C. Accessories:
  - 1. Kit: Internally mounted and labeled for copper ground conductors.
  - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper neutral conductors.
  - 3. Lugs: Mechanical type, suitable for number, size, and conductor material.

## 2.3 MOLDED-CASE CIRCUIT BREAKERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - 3. Siemens Energy & Automation, Inc.
  - 4. Square D; a brand of Schneider Electric.
- B. Circuit breakers shall be constructed using glass-reinforced insulating material. Current carrying components shall be completely isolated from the handle and the accessory mounting area.
- C. Circuit breakers shall have a toggle operating mechanism with common tripping of all poles, which provides quick-make, quick-break contact action. The circuit-breaker handle shall be over center, be trip free, and reside in a tripped position between on

and off to provide local trip indication. Circuit-breaker escutcheon shall be clearly marked on and off in addition to providing international I/O markings.

- D. The maximum ampere rating and UL, IEC, or other certification standards with applicable voltage systems and corresponding interrupting ratings shall be clearly marked on face of circuit breaker. Circuit breakers shall be 100 percent rated as indicated on the Drawings.
- E. Lugs shall be suitable for 90 deg C rated wire, sized according to the temperature rating in NFPA 70.
- F. Standards: Comply with UL 489 and NEMA AB 3, with interrupting capacity to comply with available fault currents.
- G. Thermal-Magnetic Circuit Breakers: Inverse time-current thermal element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- H. Features and Accessories:
  - 1. Standard frame sizes, trip ratings, and number of poles.
  - 2. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
  - 3. Breaker handle indicates tripped status.

## 2.4 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
  - 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
  - 2. Outdoor Locations: NEMA 250, Type 3R.
  - 3. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.
  - 4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
  - 1. Commencement of work shall indicate Installer's acceptance of the areas and conditions as satisfactory.

### 3.2 PREPARATION

- A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  - 1. Notify Construction Manager and Owner no fewer than three days in advance of proposed interruption of electric service.
  - 2. Do not proceed with interruption of electric service without Construction Manager's written permission.
  - 3. Comply with NFPA 70E.

### 3.3 ENCLOSURE ENVIRONMENTAL RATING APPLICATIONS

- A. Enclosed Switches and Circuit Breakers: Provide enclosures at installed locations with the following environmental ratings.
  - 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
  - 2. Outdoor Locations: NEMA 250, Type 3R.
  - 3. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.
  - 4. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.

### 3.4 INSTALLATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- C. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- D. Comply with NFPA 70 and NECA 1.

### 3.5 IDENTIFICATION

- A. Comply with requirements in Section 260553 "Identification for Electrical Systems."
  - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
  - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

### 3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections for Switches:
  - 1. Visual and Mechanical Inspection:
    - a. Inspect physical and mechanical condition.
    - b. Inspect anchorage, alignment, grounding, and clearances.
    - c. Verify that the unit is clean.
    - d. Inspect bolted electrical connections for high resistance using one of the two following methods:
      - 1) Use a low-resistance ohmmeter.
        - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
      - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
        - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
    - e. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
  - 2. Electrical Tests:
    - a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
    - b. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with switch closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
    - c. Perform ground fault test according to NETA ATS 7.14 "Ground Fault Protection Systems, Low-Voltage."

C. Tests and Inspections for Molded Case Circuit Breakers:

1. Visual and Mechanical Inspection:

- a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
- b. Inspect physical and mechanical condition.
- c. Inspect anchorage, alignment, grounding, and clearances.
- d. Verify that the unit is clean.
- e. Operate the circuit breaker to ensure smooth operation.
- f. Inspect bolted electrical connections for high resistance using one of the two following methods:
  - 1) Use a low-resistance ohmmeter.
    - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
  - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
    - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
- g. Inspect operating mechanism, contacts, and chutes in unsealed units.
- h. Perform adjustments for final protective device settings in accordance with the coordination study.

2. Electrical Tests:

- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
- b. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with circuit breaker closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
- c. Determine the following by primary current injection:

- 1) Long-time pickup and delay. Pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
  - 2) Short-time pickup and delay. Short-time pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
  - 3) Instantaneous pickup. Instantaneous pickup values shall be as specified and within manufacturer's published tolerances.
- d. Test functionality of the trip unit by means of primary current injection. Pickup values and trip characteristics shall be as specified and within manufacturer's published tolerances.
3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
  4. Perform the following infrared scan tests and inspections and prepare reports:
    - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
    - b. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.
1. Test procedures used.
  2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
  3. List deficiencies detected, remedial action taken, and observations after remedial action.

### 3.7 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

END OF SECTION 262816

## SECTION 263213 - ENGINE GENERATORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 RELATED SECTIONS

- A. Section 012300 – Alternates.

#### 1.3 SUMMARY

- A. Section includes packaged engine-generator sets for standby power supply with the following features:
  - 1. Natural-gas engines, as indicated on the drawings.
  - 2. Control and monitoring.
  - 3. Unit-mounted cooling system.
  - 4. Unit-mounted and remote-mounted control and monitoring.
  - 5. Fuel system.
  - 6. Vibration isolation devices.
  - 7. Temporary load banks for testing.
  - 8. Outdoor, sound-attenuating, enclosure.
- B. Related Requirements:
  - 1. Section 263600 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

#### 1.4 DEFINITIONS

- A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- B. SPSS: Standby power supply system.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
  - 2. Include thermal damage curve for generator.
  - 3. Include time-current characteristic curves for generator protective device.
  - 4. Include fuel consumption in cf per hour at 0.8 power factor at 0.5, 0.75 and 1.0 times generator capacity.
  - 5. Include generator efficiency at 0.8 power factor at 0.5, 0.75 and 1.0 times generator capacity.
  - 6. Include air flow requirements for cooling and combustion air in cfm at 0.8 power factor, with air supply temperature of 95, 80, 70, and 50 deg F. Provide drawings showing requirements and limitations for location of air intake and exhausts.
  - 7. Include generator characteristics, including, but not limited to kw rating, efficiency, reactances, and short-circuit current capability.
- B. Shop Drawings:
  - 1. Include plans and elevations for engine-generator set and other components specified. Indicate access requirements.
  - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 3. Identify fluid drain ports and clearance requirements for proper fluid drain.
  - 4. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include base weights.
  - 5. Include diagrams for power, signal, and control wiring. Complete schematic, wiring, and interconnection diagrams showing terminal markings for EPS equipment and functional relationship between all electrical components.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and testing agency.
- B. Source quality-control reports, including, but not limited to the following:
  - 1. Certified summary of prototype-unit test report.
  - 2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
  - 3. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.

03/11/2021

4. Report of sound generation.
  5. Report of exhaust emissions showing compliance with applicable regulations.
  6. Certified Torsional Vibration Compatibility: Comply with NFPA 110.
- C. Field quality-control reports.
- D. Warranty: For special warranty.

#### **1.7 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals.
1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
    - a. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
    - b. Operating instructions laminated and mounted adjacent to generator location.
    - c. Training plan.

#### **1.8 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Fuses: One for every 10 of each type and rating but no fewer than one of each.
  2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
  3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.
  4. Tools: Each tool listed by part number in operations and maintenance manual.

#### **1.9 QUALITY ASSURANCE**

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved by manufacturer.
- B. Testing Agency Qualifications: Member Company of NETA or an NRTL.
1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

03/11/2021

## 1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Five (5) years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Project design is based on Generac generator sets as indicated in generator schedule on contract drawings. Generator set must be EPA SI NSPS Compliant Capable. Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - 1. Generac Power Systems, Inc.
  - 2. Onan/Cummins Power Generation; Industrial Business Group.
  - 3. Kohler Co.; Generator Division.
  - 4. Magnetek, Inc.
  - 5. Caterpillar; Engine Div.
- B. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

### 2.2 PERFORMANCE REQUIREMENTS

- A. ASME Compliance: Comply with ASME B15.1.
- B. NFPA Compliance:
  - 1. Comply with NFPA 37.
  - 2. Comply with NFPA 70.
  - 3. Comply with NFPA 110 requirements for Level 2 emergency power supply system.
- C. UL Compliance: Comply with UL 2200.
- D. Engine Exhaust Emissions: Comply with EPA Tier 3 requirements and applicable state and local government requirements.
- E. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

- F. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
  - 1. Ambient Temperature: Minus 15 to plus 40 deg C.
  - 2. Relative Humidity: Zero to 95 percent.
  - 3. Altitude: Sea level to 1000 feet.

### 2.3 ASSEMBLY DESCRIPTION

- A. Factory-assembled and tested, water-cooled engine, with brushless generator and accessories.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
- C. SPSS Class: Engine-generator set shall be classified as a Class 2 in accordance with NFPA 110.
- D. Induction Method: Naturally aspirated.
- E. Governor: Adjustable isochronous, with speed sensing.
- F. Emissions: Comply with EPA Tier 3 requirements.
- G. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.
  - 1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.
- H. Capacities and Characteristics:
  - 1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries, with capacity as required to operate as a unit as evidenced by records of prototype testing. See generator schedule on drawings for power output ratings.
  - 2. Output Connections: Three-phase, four wire.
  - 3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.
- I. Generator-Set Performance:

1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
7. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
8. Start Time: Comply with NFPA 110, Level 2, system requirements.

## **2.4 ENGINE**

- A. Fuel: Natural gas, as indicated on generator schedule on drawings.
- B. Rated Engine Speed: 1800 rpm.
- C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm.
- D. Lubrication System: The following items are mounted on engine or skid:
  1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
  2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
  3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- E. Jacket Coolant Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 2 equipment for heater capacity.

- F. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.
  - 1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
  - 2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
  - 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
  - 4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
  - 5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
    - a. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and noncollapsible under vacuum.
    - b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- G. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements. Mounted internally within the enclosure.
  - 1. Minimum sound attenuation of 25 dB at 500 Hz.
  - 2. Sound level measured at a distance of 25 feet from exhaust discharge after installation is complete shall be 78 dBA or less.
- H. Air-Intake Filter: Standard duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.
- I. Starting System: 24-V electric, with negative ground.
  - 1. Components: Sized so they are not damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Performance Requirements" Article.
  - 2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
  - 3. Cranking Cycle: As required by NFPA 110 for system level specified.
  - 4. Battery: Lead acid, with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least three times without recharging.
  - 5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.

6. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in "Performance Requirements" Article. Include accessories required to support and fasten batteries in place. Provide ventilation to exhaust battery gases.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35 A minimum continuous rating.
8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type designed for lead-acid batteries. Unit shall comply with UL 1236 and include the following features:
  - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
  - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg F to 140 deg F to prevent overcharging at high temperatures and undercharging at low temperatures.
  - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
  - d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
  - e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
  - f. Enclosure and Mounting: NEMA 250, Type 1, mounted within generator outdoor enclosure.

## 2.5 GASEOUS FUEL SYSTEM

- A. Natural-Gas Piping: Comply with requirements in Section 221123 "Facility Natural-Gas Piping."
- B. Gas Train: Comply with NFPA 37.
- C. Engine Fuel System:
  1. Natural-Gas System:
    - a. Carburetor.

- b. Secondary Gas Regulator: One for Natural-Gas fuel, with atmospheric vents piped to building exterior.
- c. Automatic safety Fuel-Shutoff Solenoid Valves (ASSV): NRTL-listed, normally closed, safety shutoff valves; two for Natural-Gas fuel source. Provide a manual leak test valve for each ASSV.
- d. Fuel Filters: One for Natural-Gas fuel.
- e. Manual Fuel Shutoff Valve: One for Natural-Gas fuel.
- f. Flexible Fuel Connector: Minimum one for fuel connection.

## 2.6 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms.
- B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms.
- C. Provide minimum run time control set for 30 minutes with override only by operation of a remote emergency-stop switch.
- D. Comply with UL 508A.
- E. Configuration: Operating and safety indications, protective devices, basic system controls, engine gages, instrument transformers, generator disconnect switch or circuit breaker, and other indicated components shall be grouped in a combination control and power panel. Control and monitoring section of panel shall be isolated from power sections by steel barriers. Panel shall be powered from the engine-generator set battery. Panel features shall include the following:
  - 1. Wall-Mounting Cabinet Construction: Rigid, self-supporting steel unit complying with NEMA ICS 6. Power bus shall be copper. Bus, bus supports, control wiring, and temperature rise shall comply with UL 891.
- F. Indicating Devices : As required by NFPA 110 for Level 2 system, including the following:
  - 1. AC voltmeter.
  - 2. AC ammeter.
  - 3. AC frequency meter.
  - 4. EPS supplying load indicator.

03/11/2021

5. Ammeter and voltmeter phase-selector switches.
  6. DC voltmeter (alternator battery charging).
  7. Engine-coolant temperature gage.
  8. Engine lubricating-oil pressure gage.
  9. Running-time meter.
  10. Current and Potential Transformers: Instrument accuracy class.
- G. Protective Devices and Controls in Local Control Panel: Shutdown devices and common visual alarm indication as required by NFPA 110 for Level 2 system, including the following:
1. Start-stop switch.
  2. Overcrank shutdown device.
  3. Overspeed shutdown device.
  4. Coolant high-temperature shutdown device.
  5. Coolant low-level shutdown device.
  6. Low lube oil pressure shutdown device.
  7. Air shutdown damper shutdown device when used.
  8. Overcrank alarm.
  9. Overspeed alarm.
  10. Coolant high-temperature alarm.
  11. Coolant low-temperature alarm.
  12. Coolant low-level alarm.
  13. Low lube oil pressure alarm.
  14. Air shutdown damper alarm when used.
  15. Lamp test.
  16. Contacts for local and remote common alarm.
  17. Coolant high-temperature prealarm.
  18. Generator-voltage adjusting rheostat.
  19. Control switch not in automatic position alarm.
  20. Low-starting air pressure alarm.
  21. Low-starting hydraulic pressure alarm.
  22. Low cranking voltage alarm.
  23. Battery-charger malfunction alarm.
  24. Battery low-voltage alarm.
  25. Battery high-voltage alarm.
  26. Generator overcurrent protective device not closed alarm.
- H. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.
- I. Remote Alarm Annunciator: Comply with NFPA 110 requirements for Level 2 systems. An LED labeled with proper alarm conditions shall identify each alarm event, and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

1. Overcrank alarm.
2. Coolant low-temperature alarm.
3. High engine temperature prealarm.
4. High engine temperature alarm.
5. Low lube oil pressure alarm.
6. Overspeed alarm.
7. Low coolant level alarm.
8. Low cranking voltage alarm.
9. Contacts for local and remote common alarm.
10. Audible-alarm silencing switch.
11. Air shutdown damper when used.
12. Run-Off-Auto switch.
13. Control switch not in automatic position alarm.
14. Lamp test.
15. Low cranking voltage alarm.
16. Generator overcurrent protective device not closed.

- J. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.
- K. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

## 2.7 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Overcurrent protective devices for the entire SPSS shall be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices shall consider both utility and SPSS as the voltage source.
1. Overcurrent protective devices for the SPSS shall be accessible only to authorized personnel.
- B. Generator Circuit Breaker: Molded-case, thermal-magnetic type; 100 percent rated; complying with UL 489.
1. Tripping Characteristic: Designed specifically for generator protection.
  2. Trip Rating: Matched to generator output rating.
  3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
  4. Mounting: Adjacent to or integrated with control and monitoring panel.
- C. Generator Protector: Microprocessor-based unit shall continuously monitor current level in each phase of generator output, integrate generator heating effect over time, and predict when thermal damage of alternator will occur. When signaled by generator protector or other generator-set protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from load circuits. Protector performs the following functions:

1. Initiates a generator overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms. Contacts shall be available for load shed functions.
2. Under single or three-phase fault conditions, regulates generator to 300 percent of rated full-load current for up to 10 seconds.
3. As overcurrent heating effect on the generator approaches the thermal damage point of the unit, protector switches the excitation system off, opens the generator disconnect device, and shuts down the generator set.
4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.

## **2.8 GENERATOR, EXCITER, AND VOLTAGE REGULATOR**

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H or Class F.
- D. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- E. Enclosure: Dripproof.
- F. Instrument Transformers: Mounted within generator enclosure.
- G. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified and as required by NFPA 110.
  1. Adjusting Rheostat on Control and Monitoring Panel: Provide plus or minus 5 percent adjustment of output-voltage operating band.
  2. Maintain voltage within 30 percent on one step, full load.
  3. Provide anti-hunt provision to stabilize voltage.
  4. Maintain frequency within 10 percent and stabilize at rated frequency within 5 seconds.
- H. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.
- I. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- J. Subtransient Reactance: 12 percent, maximum.

## 2.9 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Prefabricated, vandal-resistant, Level 2 sound-attenuating, weatherproof steel housing, wind resistant up to 100 mph. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.
  - 1. Structural Design and Anchorage: Comply with ASCE 7 for wind loads up to 100 mph.
  - 2. Hinged Doors: With padlocking provisions.
  - 3. Space Heater: Thermostatically controlled and sized to prevent condensation.
  - 4. Lighting: Provide weather resistant fluorescent lighting with 30 footcandles average maintained illumination.
  - 5. Thermal Insulation: Manufacturer's standard materials and thickness selected in coordination with space heater to maintain winter interior temperature within operating limits required by engine-generator-set components.
  - 6. Muffler Location: Internal or External to enclosure.
- B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.
  - 1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
  - 2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.
  - 3. Ventilation: Provide temperature-controlled exhaust fan interlocked to prevent operation when engine is running.
- C. Electrical Load-Center: 125A Main Lugs, 208/120V, 1-Phase, 3-wire, 10,000A IR, 8 pole load center with 8-20A branch circuit breakers. NEMA 3R.
- D. Convenience Outlet: Factory wired, GFCI.

## 2.10 MOTORS

- A. Description: NEMA MG 1, Design B, medium induction random-wound, squirrel cage motor.
- B. Efficiency: Energy efficient, as defined in NEMA MG 1.
- C. Service Factor: 1.15.
- D. Bearings: Regreasable, shielded, antifriction ball bearings suitable for radial and thrust loading.

03/11/2021

- E. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- F. Temperature Rise: Match insulation rating.
- G. Code Letter Designation:
  - 1. Motors 15 HP and Larger: NEMA starting Code F or Code G.
  - 2. Motors Smaller than 15 HP: Manufacturer's standard starting characteristic.
- H. Enclosure Material: Cast iron for motor frame sizes 324T and larger; rolled steel for motor frame sizes smaller than 324T.
- I. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.

## 2.11 VIBRATION ISOLATION DEVICES

- A. Restrained Spring Isolators: Freestanding, steel, open-spring isolators.
  - 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to wind loads or if weight is removed; factory-drilled baseplate bonded to 1/4-inch thick, elastomeric isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
  - 2. Outside Spring Diameter: Not less than 80 percent of compressed height of the spring at rated load.
  - 3. Minimum Additional Travel: 50 percent of required deflection at rated load.
  - 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
  - 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
  - 6. Minimum Deflection: 1 inch.
- B. Vibration isolation devices shall not be used to accommodate misalignments or to make bends.

## 2.12 FINISHES

- A. Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment, compatible primer and finish painting.

### **2.13 SOURCE QUALITY CONTROL**

- A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
  - 1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.
- B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
  - 1. Test generator, exciter, and voltage regulator as a unit.
  - 2. Full load run.
  - 3. Maximum power.
  - 4. Voltage regulation.
  - 5. Transient and steady-state governing.
  - 6. Single-step load pickup.
  - 7. Safety shutdown.

### **2.14 TEMPORARY LOAD BANK FOR TESTING**

- A. Description: Provide temporary, stand alone, resistive unit capable of providing a balanced three-phase, delta-connected load to engine generator at 100 percent rated-system capacity, for testing the generators before connecting to the building electrical system. Unit shall be capable of selective control of load in 25 percent steps of load bank rating.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.
- B. Examine roughing-in for piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then

03/11/2021

only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Construction Manager and Owner no fewer than three working days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

### **3.3 INSTALLATION**

- A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.
- B. Equipment Mounting:
  1. Install packaged engine generators on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
  2. Coordinate size and location of concrete bases for packaged engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.
- C. Install packaged engine-generator to provide access, without removing connections or accessories, for periodic maintenance.
- D. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

### **3.4 CONNECTIONS**

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping and specialties.
- B. Connect fuel, cooling-system, and exhaust-system piping adjacent to packaged engine-generator to allow service and maintenance.
- C. Connect engine exhaust pipe to engine with flexible connector.
- D. Connect fuel piping to engines with a gate valve and union and flexible connector.
  1. Natural-gas piping, valves, and specialties for gas distribution are specified in Section 221123 "Facility Natural-Gas Piping."
  2. Install manual shutoff valve in a remote location to isolate natural-gas supply to the generator.
  3. Vent gas pressure regulators outside building a minimum of 60 inches from building openings.

03/11/2021

- E. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- F. Connect wiring according to Section 260519 "Electrical Power Conductors and Cables." Provide a minimum of one 90 degree bend in flexible conduit routed to the generator set from a stationary element.
- G. Balance single-phase loads to obtain a maximum of 10 percent unbalance between any two phases.

### 3.5 IDENTIFICATION

- A. Identify system components according to Section 260553 "Identification for Electrical Systems."
- B. Install a sign indicating the generator neutral is bonded to the main service neutral at the main service location.

### 3.6 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage and pay for a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Tests and Inspections:
  - 1. Perform tests recommended by manufacturer and each visual and mechanical inspection and electrical and mechanical test listed in the first two subparagraphs as specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
    - a. Visual and Mechanical Inspection
      - 1) Compare equipment nameplate data with drawings and specifications.
      - 2) Inspect physical and mechanical condition.
      - 3) Inspect anchorage, alignment, and grounding.
      - 4) Verify the unit is clean.
    - b. Electrical and Mechanical Tests
      - 1) Perform insulation-resistance tests in accordance with IEEE 43.
        - a) Machines larger than 150 kilowatts, Test duration shall be 10 minutes. Calculate polarization index.

- b) Machines 150 kilowatts or less. Test duration shall be one minute. Calculate the dielectric-absorption ratio.
  - 2) Test protective relay devices.
  - 3) Verify phase rotation, phasing, and synchronized operation as required by the manufacturer.
  - 4) Functionally test engine shutdown for low oil pressure, over temperature, overspeed, and other protection features as applicable.
  - 5) Conduct performance test in accordance with NFPA 110.
  - 6) Verify correct functioning of the governor and regulator.
2. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
  - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
  - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
  - c. Verify acceptance of charge for each element of the battery after discharge.
  - d. Verify that measurements are within manufacturer's specifications.
3. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
4. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
5. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
6. Exhaust Emissions Test: Comply with applicable government test criteria.
7. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
8. Harmonic-Content Tests: Measure harmonic content of output voltage at 25 percent and 100 percent of rated linear load. Verify that harmonic content is within specified limits.
9. Noise Level Tests: Measure A-weighted level of noise emanating from generator-set installation, including engine exhaust and cooling-air intake and discharge, at two locations; 25 feet from edge of the generator enclosure and on the property line, and compare measured levels with required values.

- C. Coordinate tests with tests for transfer switches and run them concurrently.
- D. Test instruments shall have been calibrated within the last 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- E. Leak Test: After installation, charge exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.
- F. Perform load bank operational test, before making final connection to the building generator feeder.
- G. Operational Test: After electrical circuitry has been energized, to confirm proper motor rotation and unit operation for generator and associated equipment, perform operational test. Provide temporary outdoor, forced-air-cooled, resistive load bank, capable of providing a balanced three-phase, delta-connected load to generator set at 100 percent rated capacity of the generator set at each location, during startup and initial testing of the generators. Perform operational test for 2-hours, full-load test operation. Contractor shall perform initial operational test during off hours when the facilities are not in operation. Connect the load bank to the load side of the generator main circuit breaker, for load bank operational testing.
- H. After successful completion of load bank operational test, make final connection to the building generator feeder and repeat operational test with tests for transfer switches.
- I. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- J. Remove and replace malfunctioning units and retest as specified above.
- K. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
- L. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- M. Infrared Scanning: After Substantial Completion, but not more than 60 days after final acceptance, perform an infrared scan of each power wiring termination and each bus connection while running with maximum load. Remove all access panels so terminations and connections are accessible to portable scanner.
  - 1. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
  - 2. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

03/11/2021

### 3.7 TRAINING

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Provide one four (4) hours sessions of training at each facility to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Provide four (4) copies of printed training instruction materials and two CD's including the training instruction materials in Microsoft windows pdf format for each facility.

### 3.8 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide **12** months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

END OF SECTION 263213

03/11/2021

## SECTION 263600 - TRANSFER SWITCHES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes transfer switches rated 600 V and less, including the following:
  - 1. Automatic transfer switches.

#### 1.3 RELATED SECTIONS

- A. Section 263213 - Engine Generators.

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
  - 1. Single-Line Diagram: Show connections between transfer switch, power sources, and load; and show interlocking provisions for each combined transfer switch.
- C. Qualification Data: For manufacturer and testing agency.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Operation and Maintenance Manuals," include the following:
  - 1. Features and operating sequences, both automatic and manual.
  - 2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

#### 1.4 QUALITY ASSURANCE

03/11/2021

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Testing Agency Qualifications: A factory trained and authorized service facility shall perform all field start ups.
- C. Source Limitations: Obtain automatic transfer switches through one source from a single manufacturer.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- E. Comply with NEMA ICS 1.
- F. Comply with NFPA 70.
- G. Comply with NFPA 110.
- H. Comply with UL 1008 unless requirements of these Specifications are stricter.

#### 1.5 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service:
  - 1. Notify Construction Manager and Owner no fewer than two days in advance of proposed interruption of electrical service.
  - 2. Do not proceed with interruption of electrical service without Construction Manager's and Owner's written permission.

#### 1.6 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Automatic Transfer Switches:

03/11/2021

- a. Generac Power Systems, Inc.
- b. Emerson; ASCO Power Technologies, LP.
- c. Onan/Cummins Power Generation; Industrial Business Group.
- d. Kohler Power Systems; Generator Division.

## 2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
- C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Electrical Operation: Accomplish by a non-fused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.
- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
  1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
  2. Switch Action: Double throw; mechanically held in both directions.
  3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 200 A and higher, shall have separate arcing contacts.
- G. Neutral Terminal: Solid and fully rated, unless otherwise indicated.
- H. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable tape markers are specified in Division 26 Section "Electrical Identification."
  1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
  2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
  3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- I. Enclosures: Outdoor NEMA Type 3R, complying with NEMA ICS 6 and UL 508, unless otherwise indicated. Indoor NEMA Type 1, complying with NEMA ICS 6 and UL

03/11/2021

508, unless otherwise indicated

- J. Annunciation, Control, and Programming Interface (alarm) Components: Devices at transfer switches for communicating with remote devices, annunciators and control panels shall have communication capability matched with generator control and alarm interface components.

## 2.3 AUTOMATIC TRANSFER SWITCHES

- A. Comply with Level 2 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated. Transfer switches shall be "open-transition" type, provide a break-before-make transfer sequence. The load shall be disconnected from one source, prior to being connected to the alternate source.
- C. Automatic Open-Transition Transfer Switches: Interlocked to prevent the load from being closed on both sources at the same time.
  - 1. Sources shall be mechanically and electrically interlocked to prevent closing both sources on the load at the same time.
  - 2. Fully automatic break-before-make operation.
- D. Manual Switch Operation: Unloaded. Control circuit automatically disconnects from electrical operator during manual operation.
- E. Automatic Transfer-Switch Features:
  - 1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase.
- F. Auxiliary Contacts:
  - 1. ATS shall be provided with two normally closed and two normally open auxiliary contacts that change state when the switch changes position.

## 2.4 SOURCE QUALITY CONTROL

- A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

**03/11/2021**

- A. Design each fastener and support to carry load indicated by manufacturer's requirements.
- B. Identify components according to Division 26 Section "Electrical Identification."
- C. Set field-adjustable intervals and delays, relays, and engine exerciser clock.
- D. The generator is not a separately derived system. Bond existing electrical service neutral to the generator neutral and to equipment grounding conductor.

### **3.2 CONNECTIONS**

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Ground equipment according to Division 26 Section "Grounding and Bonding."
- C. Connect wiring according to Division 26 Section "Conductors and Cables."

### **3.3 FIELD QUALITY CONTROL**

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform tests and inspections and prepare test reports.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- C. Perform tests and inspections and prepare test reports.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
  - 2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
  - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  - 4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
    - a. Check for electrical continuity of circuits and for short circuits.
    - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    - c. Verify that manual transfer warnings are properly placed.
    - d. Perform manual transfer operation.

5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
  - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
  - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
  - c. Verify time-delay settings.
  - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
  - e. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
  - f. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

D. Tests and Inspections:

1. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
  - a. Check for electrical continuity of circuits and for short circuits.
  - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
  - c. Verify that manual transfer warnings are properly placed.
  - d. Perform manual transfer operation.
4. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
  - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
  - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
  - c. Verify time-delay settings.
  - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
  - e. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
  - f. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

E. Coordinate tests with tests of generator and run them concurrently.

F. Report results of tests and inspections in writing. Record adjustable relay settings and

**03/11/2021**

measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

- G. Remove and replace malfunctioning units and retest as specified above.

#### 3.4 DEMONSTRATION AND TRAINING

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Division 26 Section 263213 - "Engine Generators."
- B. Coordinate this training with that for generator equipment.

END OF SECTION 263600



**SECTION 312220  
EXCAVATION, TRENCHING AND BACKFILLING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Provide excavation, backfilling, compacting and surface restoration in accordance with the Contract Documents. The "General Conditions Governing All Contracts" shall apply to all work under the Contract. The Work of this Section shall include but not be limited to the following:

1. Excavation.
2. Disposal of excess materials.
3. Backfilling and compacting.
4. Rough and final grading of the site.
5. Surface restoration.

**1.2 SUBMITTALS**

A. All submittals shall conform completely to the requirements of the contract documents.

**PART 2 - PRODUCTS**

**2.1 GENERAL**

A. This section includes all excavation, backfilling, compacting and surface restoration necessary to complete the work as indicated on the drawings and required for all structures above and below ground. Excavation shall include the removal from place of all materials as specified by the Engineer. This section also includes the rough and final grading of the site.

B. Approval required: All materials to be utilized on the project shall be subject to the approval of the Engineer. The Engineer alone shall determine whether a material is suitable or unsuitable for the use intended. This shall require the Contractor's removal of existing unsuitable material from beneath a paved, or turf areas and the importation of suitable material from offsite.

C. Suitable material: In general, any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or manmade origin, including mixtures thereof, are considered as suitable materials, as determined by the Engineer as suitable for filling, backfilling, embankment construction, as a base for placement of pipe, structures, or fill, or other uses.

D. Unsuitable materials: Any material containing clay, vegetable or organic matter, such as muck, peat, organic silt, topsoil or sod, that is not satisfactory for the use intended, as determined by the Engineer, is designated as an unsuitable material.

### **PART 3 - EXECUTION**

#### **3.1 INSPECTION OF CONDITIONS**

- A. Examine the areas and conditions under which work of this section will be installed. Correct conditions detrimental to proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

- A. Dust Control: Use all means necessary to control dust on and near the site and on and near all off-site borrow areas if such dust is caused by any of the Contractor's operations during performance of the various contracts, or if resulting from the condition in which the Contractor leaves the site. Thoroughly moisten all surfaces twice a day or as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on the site.
- B. Protection: Use all means necessary to protect the work of this Section before, during, and after installation and to protect all objects designated to remain. Place temporary fencing such as snow fence, and night illumination and safety blinkers around all open excavations. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- D. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- E. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- F. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- G. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

#### **3.3 EXCAVATION**

- A. General: Excavation shall be made in open cut to the widths and depths necessary for constructing, according to the Drawings, all pipelines, pavements, walks, slab-on-grade concrete pads and other items of work included in this Contract, except those specifically excluded. The excavations shall be of sufficient size to permit the work to be properly constructed in the manner and of the size specified. The excavation to the grades as indicated on the Drawings or as ordered by the Engineer may be dug by machine as conditions permit and as the Contractor desires, provided that reasonable care is exercised not to unduly disturb the

natural state of the soils below this depth of excavation. Excavations carried below the required depth without specific directions from the Engineer shall be refilled to the proper grade with lean concrete or other materials at the direction of the Engineer, at the Contractor's expense. All excavations near existing piping or conduit shall be done by hand. Special care shall be exercised to avoid damage to existing pipes and conduit. Any pipes or conduits broken during excavation, whether shown on the drawings or not, shall be repaired or replaced at the Contractor's expense.

1. The top portion of a trench may be excavated with vertical or sloping sides to any width which will not cause damage to adjoining structures, roadways, pavements, utilities, trees or private property. The slope of the sides of an unshored trench and the size and spacing of members used to shore a trench excavated with vertical sides will be in accordance with the Occupational Safety and Health Act requirements.
2. A sufficient quantity of approved suitable excavated material shall be stockpiled for use as fill to be used to bring the site to final grade as shown on the plans. There shall be no extra direct compensation for this stockpiling of suitable material, the costs thereof shall be deemed included in the contract lump sum bid.
3. All suitable excavated materials shall remain the property of the Owner until such time as indicated by the Engineer. The disposal of excess excavated materials and unsuitable materials shall be the responsibility of the Contractor at no additional compensation.
4. In the event that the materials encountered at the specified elevations are not suitable or in case it is found desirable or necessary to go to additional depth, the excavation shall be carried to such additional depth as the Engineer may direct in writing. The Contractor shall refill such excavated space with either Class B Concrete or Crushed Stone or Gravel, or other selected fill materials as ordered. Additional depth of excavation so ordered, and concrete, crushed stone, gravel or selected fill materials ordered for refilling such additional excavation, will be compensated for as extra work. Crushed stone, gravel or selected fill used for this refilling shall conform to the requirements specified hereinafter in this section, under Paragraph 3.4.
5. Excavation for all equipment concrete pads shall extend a minimum of 12 inches below the planned elevation of the base of all pads. The bed shall then be brought to proper grade with compacted crushed stone in compliance with the requirements for filling, backfilling and compaction specified hereinafter in this section under Paragraph 3.4.
6. No separate payment will be made for crushed stone or gravel used as a bedding material. The cost of all bedding material shall be included in the lump sum bid for this Contract.

### **3.4 FILLING, BACKFILLING, AND COMPACTION**

#### **A. Compacting of Existing Subgrade:**

1. Method of Compaction: The compaction of existing subgrade shall be sufficient to

develop to a depth of at least 12 inches below ground surface (after removal of unsuitable soils) 95% of maximum Modified Proctor density, determined in the laboratory by the Engineer in conformance to ASTM Designation D1557-78. The compaction shall be checked by the Engineer and fill shall not be placed until compaction of the existing subgrade is approved by the Engineer. At the option of the Engineer, the Contractor may be asked to leave the subgrade uncompacted.

2. Elevations: When requested by the Engineer, the Contractor shall furnish the elevations of the subgrade to the Engineer.
- B. Subgrade approval: Immediately before placing crushed stone for slab on compacted fill or virgin soil, the Engineer shall observe the slab subgrade. The Contractor shall remove any soft spots and replace with properly compacted material. Final subgrade elevations shall be finished within a tolerance of 1/4" of the required elevation when tested with a 10-foot straight edge. The pouring of slabs shall commence within 24 hours of final approval. Rain, frost and other factors which in the opinion of the Engineer are potentially damaging to the fill occurring after the final approval, but before or during pouring, shall require additional observation of the compacted fill for approval by the Engineer.
- C. Selection and Classification of Backfill Materials
1. Bedding Fill Materials: Bedding fill shall be provided under all conduits as indicated on the drawings and shall be thoroughly compacted by tamping or slicing with a flat blade shovel. Material for bedding fill under pipes shall be sand. Bedding fill also shall be provided under all structures including, but not limited to, slabs. Bedding fill under each structure and slabs shall be at least 6 inches deep, consisting of crushed stone, shall be provided under the entire structure and shall be compacted as described hereinafter. Crushed stone for bedding fill for structures and slabs shall be washed, 3/4 inch size with no organic matter, no cohesion and no plasticity.
  2. Other Miscellaneous Fill Material: To the extent possible, use shall be made of existing material on the site for backfill. On-site borrow materials shall be selected fill used where possible, consisting of hard, durable particles, conforming to the following specifications:
    - a) Maximum Particle Size = 4 inches.
    - b) Between 5% and 65% by weight retained on the #4 mesh sieve.
    - c) Between 20% and 85% by weight retained on the #30 sieve.
    - d) No more than 12% by weight, #200 mesh sieve - non-plastic.
    - e) The fill material shall be free of organic matter, rubble and all deleterious substance.
- D. Placement and compaction of fill: Where compacted fill is required, place and compact fill material in order to ensure the required soil density as hereinafter specified.
1. Placement of fill: The fill shall be spread evenly by mechanical equipment or by manual means above the approved subgrade and shall be mixed thoroughly

and spread in lifts not exceeding six (6) to twelve (12) inches, the thickness to be determined by the Engineer in the field, and shall be built up in horizontal layers as nearly even as practicable to prevent the thickness of lift from exceeding that specified.

2. **Moisture Control:** If, in the opinion of the Engineer, fill material becomes too wet for the required compaction, the fill shall be dried by a method approved by the Engineer prior to commencing or continuing compaction operations. Likewise, if, in the opinion of the Engineer, the fill material becomes too dry for the required compaction, the fill shall be moistened by a method approved by the Engineer prior to commencing or continuing compaction operations.
  3. **Drainage of the site:** At all times, maintain and operate proper and adequate surface and subsurface drainage to the satisfaction of the Engineer in order to keep the construction site dry and in such condition that placement and compaction of fill may proceed unhindered by saturation of the area.
  4. **Compaction of file:** The degree of compaction shall be checked by the Engineer and each successive lift shall not be placed or compacted until the previous lift is observed and approved by the Engineer. Any previously approved compacted fill or underlying virgin subgrade that softens due to disturbance, rainfall, exposure or any other cause shall be removed, or dried and recompactd to the approval of the Engineer, before the next lift is placed.
    - a. Reference densities shall be as follows:
      - a) Subbase material; at least 92% of maximum Modified Density (ASTM D1557-78).
  5. **Frost:** No fill materials shall be placed when either the fill material or the previous lift or subgrade on which it is placed is frozen. In the event that any fill which has already been placed or the subgrade shall become frozen, it shall be scarified and recompactd, or removed, to the approval of the Engineer before the next lift is placed. Any soft spots resulting from frost shall be removed or recompactd to the satisfaction of the Engineer before new fill material is placed.
  6. **Backfill of excavation:** Any excavation (e.g. utilities, etc.) shall be backfilled and compacted as specified for that area. Where fill is placed adjacent to a wall, the difference in elevation of the top of the fill on either side of the wall can be no more than one foot unless the wall is adequately braced, or the wall shall have been designed to withstand pressures due to the unbalanced fill heights.
- E. **Backfilling prior to approvals:** The Contractor shall not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to all required inspections, tests, and approvals.
1. Should any of the work be so enclosed or covered up before it has

been approved, the Contractor shall uncover all such work at no additional cost to the Owner.

2. After the work has been completely tested, inspected, and approved, the Contractor shall make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

### **3.5 GEOTEXTILE FABRICS**

- A. Provide woven geotextile fabrics under crushed stone bed for equipment concrete pads, as indicated on the drawings. Geotextile fabrics shall be as made by US Fabrics, catalog no. US 200, a woven geotextile made of 100% polypropylene slit film yarns or approved equal. Geotextile fabrics shall resist ultraviolet and biological deterioration, rotting, naturally encountered bases and acids and satisfy the requirements of AASHTO M-288-06 for Class 3 Stabilization & Separation applications.

### **3.6 WOODEN POST**

- A. Provide 6"W x 6"D x 6'-0"H treated wooden post with concrete base at the generator fuel entry point for attaching low pressure gas piping. Required for the generators with natural gas fuel.

### **3.7 LABELING AND IDENTIFYING**

- A. Detectable Warning Tape: Acid and alkali-resistant PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.
- B. Install detectable warning tape directly above electric and gas piping, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

### **3.8 SURFACE RESTORATION**

- A. Provide surface restoration of all existing turf, walkways and pavement areas disturbed or damaged during excavation and backfilling work.
- B. Restore appearance, quality, and condition of finished surfacing to match adjacent area of turf, walkways and pavements and eliminate evidence of restoration to the greatest extent possible.

### **3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Disposal: Remove surplus soil and waste material, trash, and debris, and legally dispose it off the Owner's property.

**END OF SECTION**

**SECTION 313113  
CHAIN LINK FENCES & GATES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 RELATED SECTIONS**

- A. Section 012300 – Alternates.

**1.3 SCOPE OF WORK**

- A. Chain link fence for general security applications.
- B. Swing gates.

**1.4 REFERENCES**

The publications referenced below establish minimum requirements for materials, systems and execution which may be specified in this Section.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 153	Zinc-Coating (Hot Dip) on Iron and Steel Hardware
ASTM A 392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 780	Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings
ASTM C 94	Ready-Mixed Concrete
ASTM F 626	Fence Fittings
ASTM F 883	Padlocks
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework
ASTM F 1083	Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

**1.5 SUBMITTALS**

- A. Certificates: Statement, signed by an official authorized to certify on behalf of the manufacturer, attesting that the chain link fence and component materials meet the specified requirements.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Chain Link Fence Fabric: ASTM A 392, Class 2, zinc-coated steel wire with minimum coating weight of 2.0 ounces of zinc per square foot of coated surface, or ASTM A 491, Type I, aluminum-coated steel wire 0.3 ounces of zinc per square foot. Fabric shall be fabricated of 9 gauge wire woven in 2 inch mesh. Fabric height shall be as shown. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage.
- B. Gates: ASTM F 900 and/or ASTM F 1184. Gate shall be the type and swing shown. Gate frames shall conform to strength and coating requirements of ASTM F 1083 for Group IA, steel pipe, with external coating Type A, nominal pipe size (NPS) 1-1/2. Gate frames shall conform to strength and coating requirements of ASTM F 1043, for Group IC, steel pipe with external coating Type A or Type B, nominal pipe size (NPS) 1-1/2. Gate fabric shall be as specified for chain link fabric. Gate leaves more than 8 feet wide shall have either intermediate members and diagonal truss rods or shall have tubular members as necessary to provide rigid construction, free from sag or twist. Gate leaves less than 8 feet wide shall have truss rods or intermediate braces. Gate fabric shall be attached to the gate frame by method standard with the manufacturer except that welding will not be permitted. Latches, hinges, stops, keepers, rollers, and other hardware items shall be furnished as required for the operation of the gate. Latches shall be arranged for padlocking.
- C. Metal Posts for Chain Link Fence: ASTM F 1083, zinc-coated. Group IA, with external coating Type A steel pipe. Group IC steel pipe, zinc-coated with external coating Type A or Type B and Group II, roll-formed steel sections, shall meet the strength and coating requirements of ASTM F 1043. Group III, ASTM F 1043 steel H-section may be used for line posts in lieu of line post shapes specified for the other classes. Sizes shall be as shown on the drawings. Line posts and terminal (corner, gate, and pull) posts selected shall be of the same designation throughout the fence. Gate post shall be for the gate type specified subject to the limitation specified in ASTM F 900 and/or ASTM F 1184.
- D. Braces And Rails: ASTM F 1083, zinc-coated, Group IA, steel pipe, size NPS 1-1/4. Group IC steel pipe, zinc-coated, shall meet the strength and coating requirements of ASTM F 1043. Group II, formed steel sections, size 1-21/32 inch, conforming to ASTM F 1043, may be used as braces and rails if Group II line posts are furnished.
- E. Accessories: ASTM F 626. Ferrous accessories shall be zinc or aluminum coated. Truss rods shall be furnished for each terminal post. Truss rods shall be provided with turnbuckles or other equivalent provisions for adjustment. Tie wire for attaching fabric to rails, braces, and posts shall be 9 gauge steel wire and match the coating of the fence fabric. Tie wires for attaching fabric to tension wire on high security fences shall be 16 ga stainless steel. The tie wires shall be a double loop and 6.5 inches in length. Miscellaneous hardware coatings shall conform to ASTM A 153/A 153M unless modified.
- F. Privacy Slats: Provide green PVC Privacy Slats for Chain Link Fences. Slats shall slide in vertically between curvature created by woven chain link diamonds. The feathered wings shall hold the slats in position, so no fasteners or 'weaving' of other

03/11/2021

strips is necessary. Hoover Fence Co. Item # Privacy-Slat-Winged, color green or approved equal.

- G. Concrete: ASTM C 94/C 94M, using 3/4 inch maximum size aggregate, and having minimum compressive strength of 4000 psi at 28 days. Grout shall consist of one-part portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix
- H. Padlocks: All padlocks shall be keyed alike.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- B. Install framework, fabric, accessories, and gates in accordance with the drawings and as specified.
- C. Space line posts at intervals not exceeding 10 feet.
- D. Set gate and posts plumb, in concrete footings with top of footing 1 inch above finish grade. Slope top of concrete for water runoff. Footings for line end and corner posts are to be 8 inches diameter by 3 feet deep below finish grade and for gates are to be 12 inches diameter by 3 feet 6 inches deep below finish grade.
- E. Provide top rail through line-post tops and splice with 7-inch long rail sleeves.
- F. Brace each gate and corner post back to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.
- G. Install center and bottom brace rail on corner and gate leaves.
- H. Stretch fabric between terminal posts or at intervals of 50 feet maximum, whichever is less.
- I. Position bottom of fabric to no more than 2 inches above concrete or asphalt grade and touching dirt finish grade.
- J. Fasten fabric to top rail, line posts, braces, and bottom tension wire with 11-AWG galvanized wire ties 24 inches maximum on centers.
- K. Attach fabric to end, corner, and gateposts with tension bars and tension bar clips.
- L. Install bottom rail supported at each line and terminal post in such a manner that a continuous brace between posts is formed.
- M. Install gates with fabric and barbed wire overhang to match fence. Install three hinges per leaf, latch, catches, drop bolt, foot bolts and sockets.

#### **3.2 GROUNDING**

- A. Grounding: Fences shall be grounded on each side of all gates, at each corner. Each gate panel shall be bonded with a flexible bond strap to its gate post. Fences crossed by powerlines of 600 volts or more shall be grounded at or near the point of crossing and at

**03/11/2021**

distances not exceeding 150 feet on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be 5/8 inch by 8 foot long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 6 inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 12 inches deep and radially from the fence. The top of the electrode shall be not less than 2 feet or more than 8 feet from the fence. Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation the total resistance of fence to ground shall not be greater than 25 ohms.

**END OF SECTION**

03/11/2021

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# **HUD 4010- Federal Labor Standards Provisions**

## Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

**A. 1. (i) Minimum Wages.** All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section I(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

**(ii) (a)** Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

**(1)** The work to be performed by the classification requested is not performed by a classification in the wage determination; and

**(2)** The classification is utilized in the area by the construction industry; and

**(3)** The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

**(b)** If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

**(c)** In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

**(d)** The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

**(iii)** Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

**(iv)** If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

**2. Withholding.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

**3. (i) Payrolls and basic records.** Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

**(ii) (a)** The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

**(b)** Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

**(1)** That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

**(iii) Equal employment opportunity.** The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

**6. Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

**7. Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

**10. (i) Certification of Eligibility.** By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

**(ii)** No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

**(iii)** The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

**11. Complaints, Proceedings, or Testimony by Employees.** No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

**B. Contract Work Hours and Safety Standards Act.** The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

**(1) Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

**(2) Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

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**(3) Withholding for unpaid wages and liquidated damages.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

**(4) Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

**C. Health and Safety.** The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

**(1)** No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

**(2)** The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

**(3)** The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

# **Davis Bacon Wage Decision**

"General Decision Number: NY20210020 04/16/2021

Superseded General Decision Number: NY20200020

State: New York

Construction Types: Building, Heavy, Highway and Residential

County: Rockland County in New York.

BUILDING; HEAVY; HIGHWAY; AND RESIDENTIAL CONSTRUCTION PROJECTS  
(Includes single family homes and apartments up to and including 4 stories)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/01/2021
1	03/12/2021
2	04/02/2021
3	04/16/2021

\* ASBE0091-001 06/01/2020

Rates

Fringes

HAZARDOUS MATERIAL HANDLER  
 (Duties limited to  
 preparation, wetting,  
 stripping, removal, scraping,  
 vacuuming, bagging and  
 disposing of all insulation  
 materials whether they  
 contain asbestos or not from  
 mechanical systems).....\$ 43.12                      42.35  
 Insulator/asbestos worker  
 (Includes application of all  
 insulating materials,  
 protective coverings,  
 coatings, and finishes to all  
 types of mechanical systems).....\$ 43.12                      42.35

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 BOIL005-001 01/01/2017

	Rates	Fringes
BOILERMAKER.....	\$ 55.23	33%+24.12+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial Day, Independence Day, Labor Day and Good Friday, Friday after Thanksgiving, Christmas Eve Day and New Year's Eve

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 BRNY005-005 06/01/2019

	Rates	Fringes
BRICKLAYER BUILDING/RESIDENTIAL CONSTRUCTION Bricklayers, Cement Masons, Plasterers, Stone Masons.....	\$ 42.09	34.50
HEAVY & HIGHWAY CONSTRUCTION Bricklayers, Cement Masons, Plasterers, Stone Masons, Pointers, Caulkers & Cleaners.....	\$ 41.96	33.38

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 CARP0279-004 07/01/2019

	Rates	Fringes
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Carpenters :

Building and Heavy & Highway Construction.....	\$ 45.30	30.55
Residential.....	\$ 36.23	24.47

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CARP0740-001 07/01/2020

	Rates	Fringes
MILLWRIGHT.....	\$ 55.70	53.61

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CARP1556-006 07/01/2020

	Rates	Fringes
Dock Builder & Piledrivermen.....	\$ 55.93	51.79

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CARP1556-007 07/01/2020

	Rates	Fringes
Diver Tender.....	\$ 50.34	51.79
Diver.....	\$ 70.80	51.79

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CARP1556-010 07/01/2019

	Rates	Fringes
Pipe Bending Machine Operator.....	\$ 54.63	50.98

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ELEC0363-006 04/01/2021

	Rates	Fringes
Electricians:		
BUILDING, HEAVY & HIGHWAY CONSTRUCTION.....	\$ 47.00	3%+33.67+a
RESIDENTIAL CONSTRUCTION.....	\$ 47.00	3%+33.67+a

FOOTNOTE:

a. Paid Holidays: New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Presidential Election Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day

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ELEC1249-002 05/04/2020

	Rates	Fringes
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ELECTRICIAN (LINE  
 CONSTRUCTION-LIGHTING AND  
 TRAFFIC SIGNAL INCLUDING ANY  
 AND ALL FIBER OPTIC CABLE  
 NECESSARY FOR THE TRAFFIC  
 SIGNAL SYSTEMS, AND TRAFFIC  
 MONITORING SYSTEMS, ROAD  
 WEATHER INFORMATION SYSTEMS)

Flagman.....	\$ 28.49	6.75%+33.90
Groundman (Digging Machine Operator).....	\$ 42.73	6.75%+33.90
Groundman (Truck Driver)....	\$ 37.98	6.75%+33.90
Groundman Truck Driver (Tractor Trailer Unit).....	\$ 40.36	6.75%+33.90
Lineman and Technician.....	\$ 47.48	6.75%+33.90
Mechanic.....	\$ 37.98	6.75%+33.90

PAID HOLIDAYS:

a. Memorial Day, New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

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 ELEC1249-004 05/04/2020

Rates                      Fringes

ELECTRICIAN (Line  
 Construction)

Overhead and underground distribution and maintenance work and all overhead and underground transmission line work including any and all fiber optic ground wire, fiber optic shield wire or any other like product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities :		
Flagman.....	\$ 32.10	6.75%+33.90
Groundman digging machine		

operator.....	\$ 48.15	6.75%+33.90
Groundman truck driver (tractor trailer unit).....	\$ 45.48	6.75%+33.90
Groundman Truck driver.....	\$ 42.80	6.75%+33.90
Lineman and Technician.....	\$ 53.50	6.75%+33.90
Mechanic.....	\$ 42.80	6.75%+33.90
Substation:		
Cable Splicer.....	\$ 58.85	6.75%+33.90
Flagman.....	\$ 32.10	6.75%+33.90
Ground man truck driver....	\$ 42.80	6.75%+33.90
Groundman digging machine operator.....	\$ 48.15	6.75%+33.90
Groundman truck driver (tractor trailer unit).....	\$ 45.48	6.75%+33.90
Lineman & Technician.....	\$ 53.50	6.75%+33.90
Mechanic.....	\$ 42.80	6.75%+33.90
Switching structures; railroad catenary installation and maintenance, third rail type underground fluid or gas filled transmission conduit and cable installations (including any and all fiber optic ground product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities), pipetype cable installation and maintenance jobs or projects, and maintenance bonding of rails; Pipetype cable installation		
Cable Splicer.....	\$ 60.30	6.75%+33.90
Flagman.....	\$ 32.89	6.75%+33.90
Groundman Digging Machine Operator.....	\$ 49.34	6.75%+33.90
Groundman Truck Driver (tractor-trailer unit).....	\$ 46.60	6.75%+33.90
Groundman Truck Driver.....	\$ 43.86	6.75%+33.90
Lineman & Technician.....	\$ 54.82	6.75%+33.90
Mechanic.....	\$ 43.86	6.75%+33.90

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Good Friday, Independence Day, Labor Day, Thanksgiving

Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

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 ELEC1249-008 01/03/2021

	Rates	Fringes
ELECTRICIAN (Line Construction)		
TELEPHONE, CATV FIBEROPTICS CABLE AND EQUIPMENT		
Cable splicer.....	\$ 34.78	3%+5.14
Groundman.....	\$ 17.50	3%+5.14
Installer Repairman-Teledata Lineman/Technician-Equipment Operator.....		
	\$ 33.01	3%+5.14
Tree Trimmer.....	\$ 27.36	3%+9.98

a. New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day.

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 ELEV0001-002 03/17/2018

	Rates	Fringes
ELEVATOR MECHANIC		
Elevator Constructor.....	\$ 64.48	36.21+a+b
Modernization and Repair....	\$ 50.49	40.399+a+b

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Good Friday, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

b. PAID VACATION: An employee who has worked less than 5 years shall receive vacation pay credit on the basis of 4% of his hourly rate for all hours worked; an employee who has worked 5 to 15 years shall receive vacation pay credit on the basis of 6% of his hourly rate for all hours worked; an employee who has worked 15 or more years shall receive vacation pay credit on the basis of 8% of his hourly rate

for all hours worked.

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ELEV0138-002 01/01/2020

THE TOWN OF STONY POINT

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 60.49	34.765+a+b

FOOTNOTE:

- a. Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
- b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

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ENGI0825-012 01/01/2018

BUILDING HEAVY AND HIGHWAY, ROAD AND STREET CONSTRUCTION

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 50.57	30.30
GROUP 2.....	\$ 48.98	30.30
GROUP 3.....	\$ 47.07	30.30
GROUP 4.....	\$ 45.44	30.30
GROUP 5.....	\$ 43.73	30.30
GROUP 6.....	\$ 52.39	30.30

NOTES:

- Hazmat Premium                    20 percent
- Hydrographic Premium            .50

FOOTNOTE:

- a. New Years Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, Washington's Birthday, Election Day, and Veterans Day provided the employee works one day during the calendar week in which the holiday occurs.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

- GROUP 1: Autograde-Pavement-Profilers (CMI and Similar Types); Autograde Slipform Paver (CMI and Similar Types);

Backhoe; Central Power Plants (all types); Concrete Paving Machine (s-240 and Similar Types); Cranes (All Types, Including Overhead And Straddle Traveling Type); Cranes, Gantry; Derricks (Land, Floating or Chicago Boom Type) Drillmaster/Quarrymaster (Down the Hole Drill) Rotary Drill; Self-Propelled, Hydraulic Drill, Self-Powered Drill Draglines, Elevator Graders, Front End Loaders (5 yds. and over), Gradalls, Grader: Rago, Helicopters (Copilot), Helicopters, (Communication Engineer), Locomotive (large), Mucking Machines, Pavement and Concrete Breaker (Superhammer, Hoe Ram, Brokk 250 and Similar Types), Pile Driver (length of Boom Including Length of Leads Shall Determine Premium Rate Applicable), Pile Driver (length of boom including length of leads shall determine rate applicable), Roadway Surface Grinder Scooper (loader and shovel), Shovels, Tree Chopper with Boom, Trench Machines, Tunnel Boring Machines.

GROUP 2: "A" Frame; Backhoe (Combination); Boom Attachment on Loaders (Rate Based On Size Of Bucket) Not Applicable To Pipehook) Boring and Drilling Machines, Brush Chopper, Shredder and Tree Shredder Tree Shearer, Cableways, Carryalls, Concrete Pump, Concrete Pumping System, Pumpcrete and Similar Types, Conveyors, 125 ft and over; Drill Doctor (duties include dust collector, maintenance), Front End Loader (22 yds. but less than 5 yds.), Graders (Finish); Groove Cutting Machine (ride on type), Heater Planing; Hoists: (all type hoists, Shall Also Include Steam, Gas, Diesel, Electric, Air Hydraulic, Single and Double Drum, Concrete, Brick Shaft, Caisson, Snorkel Roof, and or any other similar type Hoisting Machines, Portable or Stationary, Except Chicago Boom Type). Long Boom Rate to Be Applied if Hoist") Hydraulic Cranes-10tons and Under; Hydro-Axe; Hydro- Blaster; Jacket (Screw Air Hydraulic Power Operated Unit or Console Type: Not Hand Jack or Pile Load Test Type), Log Skidder; Pans, Pavers (all) Concrete; Plate and Frame Filter Press; Pumpcrete Machines; Squeeze Crete and Concrete Pumping (regardless of size); Scrapers; Sidebooms; "straddle" Carrier, Ross and Similar Types; Vacuum Truck; Whip Hammer; Winch Trucks(Hoisting).

GROUP 3: Asphalt Crubing Machine, Asphalt Plant Engineer, Asphalt Spreader; Autograde Tube Finisher & Texturing Machine (CMI and Similar types) Autograde Curecrete Machine (CMI and Similar Types); Bar Bending Machine (power), Batchers, Batching Plant and Crusher on Site; Belt Conveyor System; Boom Type Skimmer Machines; Bridge Deck Finisher; Bulldozers (all); Car Dumpers (Railroad); Chief of Party; Compressor and Blower Type Units (used) Independently or Mounted On Dual Purpose Trucks, On Job Site or In

Conduction with Job Site, In Loading and Unloading of Concrete, Cement, Fly Ash, Instantcrete, or Similar Type Materials); Compressor 92 or 3 in Battery); Concrete Finishing Machines; Concrete Saws and Cutters (ride on type); Concrete Spreaders, Hetzel, Rexomatic and Similar types; Concrete Vibrators; Conveyors, Under 125 ft), Crushing Machines, Ditching Machine, Small (ditchwitch, Vermeer or Similar type); Dope Dots (mechanical with or without pump), dumpsters; Elevator; Fireman; Forklifts (economobile, lull, and similar types of equipment); Front End Loaders (1 yd. and over but less than 2 yds.); Generators (2 or 3 in Battery/ within 100 ft); Giraffe Grinders, Graders and Motor Patrols; Grout Pump; Gunnite Machines (excluding nozzle); Hammer Vibratory (in conjunction with generators); Hoists (Roof, Tuggeaerial Platform Hoist and House Cars), Hoppers, Hoppers Doors (power operated); Hydro-Blaster (where required); Ladders (Motorized); Laddervator; Locomotive, Dinky type; Maintenance, Utility Man; Mechanics; Mixers (Excepting Paving Mixers); Motor Patrols and Graders; Pavement Breakers, Small, Self-Propelled ride on type (also Maintains Compressor or Hydraulic Unit); Pavement Breaker, Truck Mounted; Pipe Bending Machine (power); Pitch Pump; Plaster Pump (regardless of size); Post Hold Digger (post pounder and auger); Rod Bending Machines (power); Roller, Black Top; Scales, (power); Seaman Pulverizing Mixer; Shoulder Widener; Silos; Skimmer Machines (Boom Type); Steel Cutting Machine, Services and Maintains; Tamrock Drill; Tractors; Tug Captain; Vibrating Plants (used in conjunction with unloading); welder and Repair Mechanics; Concrete cleaning/decontamination machine operator; Directional boring machine; Heavy equipment robotics operator; Master environmental maintenance operator, Ultra high pressure waterjet cutting tool system operator; Vacuum blasting machine operator

GROUP 4: Brooms and Sweepers; Chippers; Compressors (single); Concrete Spreaders (small type); Conveyor Loaders (not including Elevator Graders); Engines, Large Diesel (1620 h.p.) and Staging Pump; Farm Tractors; Fertilizing Equipment (Operator and Maintenance of); Fine Grade Machine (small type); Form Line Graders (small type); Front End Loader (under 1 yd); Generator (single); Grease, Gas, Fuel and Oil Supply Trucks; Heaters (Nelson or Other Type Including Propane, Natural Gas or Flowtype Units); Lights, Portable Generating Light Plants; Mixers, Concrete Small; Mulching Equipment (Operation and Maintenance of); Pumps (2 of Less Than 4 Inch Suction); Pumps 94 Inch Suction and Over Including Submersible Pumps); Pumps (Diesel Engine and Hydraulic); Immaterial of Power; Road Finishing Machines

(Small Type); Rollers, Grade, Fill Or Stone Base; Seeding Equipment (Operation and maintenance of); Sprinkler and Water Pump Trucks (Used on job Site or in conduction with Job Site); Steam Jennies and Boilers, Irrespective of Use; Stone Spreader; Tamping Machines, Vibrating Ride On; Temporary Heating Plant (welson or Other Type, Including Propane, Natural Gas or Flow Type Units); Water and Sprinkler Trucks (Used On Job Site In Conduction with Job Site); Welding Machines-Within 100 ft (Gas, and /or Electric Converters of Any type, single, two or three in a battery). welding system, multiple (rectifier transformer type) well point systems (including installation by bull gang and maintenance of); Off Road back dumps.

GROUP 5: Oiler, tire repair

GROUP 6: Helicopter pilots

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 ENGI0825-013 01/01/2018

	Rates	Fringes
Power equipment operators:		
BUILDING CONSTRUCTION		
STEEL ERECTION		
GROUP 1.....	\$ 59.09	30.30
GROUP 2.....	\$ 57.43	30.30
GROUP 3.....	\$ 50.14	30.30
GROUP 4.....	\$ 47.48	30.30
GROUP 5.....	\$ 45.95	30.30
GROUP 6.....	\$ 44.19	30.30
GROUP 7.....	\$ 53.70	30.30
BUILDING CONSTRUCTION TANK		
ERECTION		
GROUP 1.....	\$ 58.81	30.30
GROUP 2.....	\$ 57.22	30.30
GROUP 3.....	\$ 53.70	30.30
GROUP 4.....	\$ 50.13	30.30
GROUP 5.....	\$ 44.92	30.30
OILOSTATIC MAINLINES AND		
TRANSPORTATION PIPE LINES		
GROUP 1.....	\$ 51.20	30.30
GROUP 2.....	\$ 49.55	30.30
GROUP 3.....	\$ 47.41	30.30
GROUP 4.....	\$ 45.91	30.30
GROUP 5.....	\$ 44.19	30.30
GROUP 6.....	\$ 53.13	30.30
RESIDENTIAL CONSTRUCTION		
ALL JOB CLASSIFICATION.....	\$ 11.49	7.75

NOTES:

Hydrographic Premium	.50
Hazmat Premium	20 percent
Tunnel Premium	.75

FOOTNOTE:

a. PAID HOLIDAYS: New Years Day, Independence Day, Memorial Day, Labor Day Thanksgiving Day, Christmas Day, Washington's Birthday, November Election Day, Veterans Day, Decoration Day provided the employee works one day in the calendar week during which the holiday occurs

POWER EQUIPMENT OPERATORS: STEEL ERECTION CLASSIFICATIONS

GROUP 1: Cranes (All Cranes, Land or Floating with Booms Including Jib 140 ft and over, Above Ground); Derricks, Land, Floating or Chicago Boom Type with Booms including Jib 140 ft and over above ground).

GROUP 2: Cranes (All Cranes, Land or Floating with Booms Including Jib Less Than 140 ft Above Ground); Derricks, Land, Floating or Chicago Boom Type with Booms Including Jib Less Than 140 ft above Ground).

GROUP 3: ""A"" Frame, Cherry Pickers 10 tons and under, Hoists Shall Also Include Steam, Gas, Desel, Electric, Air Hydraulic, Single and Double Drum Concrete, Brick Shaft Caisson, or Any Other Similar Type Hoisting Machines, Portable or Stationary, Except Chicago Boom Type; Jacks: Screw Air Hydraulic Power Operated unit or Console Type (not hand Jack or Pile Load Test Type); Side Booms.

GROUP 4: Aerial Platform used as Hoist; Compressor: 2 or 3 in Battery; Elevators or House Cars; Conveyors and Tugger Hosits; Chief of Party; Fireman; Forklift; Generators (2 or 3); Maintenance (Utility Man); Rod Bending Machine (power); Welding Machines (Gas or Electric, 2 or 3 in Battery, Including Diesels); Captain: Power Boats: Tug Master: Power Boats.

GROUP 5: Compressor, Single; Welding Machine, Single, Gas, Diesel, and Electric Converters of any Type: Welding System Multiple (Rectifier Transformer Type); Generator, Single.

GROUP 6: Oiler, staddle carrier

GROUP 7: Helicopter Pilot

For BUILDING CONSTRUCTION TANK ERECTION

NOTES:

Tunnel Premium	.75
Hazmat Premium	20 %
Hydrographic Premium	.50

FOOTNOTE:

a. PAID HOLIDAYS: New Years Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, Christmas Day, Washington's Birthday, November Election Day, Veterans Day, Decoration Day provided the employee works one day in the calendar week during which the holiday occurs

POWER EQUIPMENT OPERATORS: TANK ERECTION CLASSIFICATIONS

GROUP 1: Operating Engineers on all Cranes, Derricks, etc with Booms Including Jib 140 ft or More Above Ground.

GROUP 2: Operating Engineer on all Equipment, Including Cranes, Derricks, etc with Booms Including Jib, Less Than 140 ft above the ground.

GROUP 3: Helicopter Pilot

GROUP 4: Air Compressors, Welding Machines and Generators are Covered and are Defined as Cover: Gas, Diesel, or Electric Driven Equipment and Sources of Power from a Permanent Plant: ie: Steam, Compressed Air, Hydraulic or Other Power, For The Operating of any Machine or Automatic Tools, Used In The Erection, Alteration, Repair and Dismantling of Tanks and Any and All "Dual Purpose" Trucks Used On The Construction Job Site, or in the Loading and Unloading of Materials, at the Construction Job Site or in Conjunction with the Job Site.

GROUP 5: Oiler

For OILOSTATIC MAINLINES AND TRANSPORTATION PIPE LINES NOTES:

Hydrographic Premium	.50
Hazmat Premium	20%
Tunnel Premium	.75

FOOTNOTE:

a. PAID HOLIDAYS: New Years Day, Independence Day, Memorial

Day, Labor Day, Thanksgivings Day, Christmas Day, Washington's Birthday, November Election Day, Veterans Day and Decoration Day provided the employee works one day in calendar week during which the holiday occurs.

OILSTATIC MAINLINES AND TRANSPORTATION PIPE LINES CLASSIFICATIONS

GROUP 1: Backhoe; Cranes (all types); Draglines, Front End Loaders (5yds. and over), Gradalls, Helicopters (co-pilot), Helicopters (Communication Engineer); Scooper (Loader and Shovel) Koehring; Trench Machines.

GROUP 2: ""A"" Frame; Backhoe (Combination Hoe Loader); Boring and Drilling Machines; Ditching Machines, Small, Ditchwitch, Vermeer or Similar type; Forklifts; Front End Loaders 92 yds. and over but less than 5 yds.); Graders, Finish (fine); Hydraulic Cranes 10 tons and under (over 10 tons) Cranes Rate Applies); Side Booms: Winch Trucks (Hoisting).

GROUP 3: Backfiller; Brooms and Sweepers; Bulldozers; Compressor (2 or 3 in battery); Chief of Party; Front End Loaders (under 2 yds); Generators; Giraffe Grinders; Graders and Motor Patrols; Machanic; Pipe Bending Machine (power); Tractors; Water and Sprinkler Trucks used on Job Site or in Conduction with Job Site); Welder and Repair Mechanic; Captain (power boats); Tug Master (power boats).

GROUP 4: Compressor (single); Dope Pots (Mechanical with or without Pump); Dust Collectors; Pumps (4 inch suction and over); Pumps (2 of less than 4 inch suction); Pumps, Diesel Engine and Hydraulic (immaterial of power); Welding Machines, Gas or Electric Converters of any type- 2 or 3 in Battery Multiple Welders; Well Point Systems (including installation and Maintenance); Farm Tractors.

GROUP 5: Oiler, grease, gas, fuel and oil supply trucks; Tire repair and maintenance

GROUP 6: Helicopter Pilot

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IRON0417-001 07/01/2020

	Rates	Fringes
IRONWORKER.....	\$ 40.48	46.45+a

a) Paid Holidays: New Year's Day, Memorial Day, Fourth of

July, Labor Day, Thanksgiving Day, Day after Thanksgiving  
 (unpaid), Christmas Day.

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 LAB00754-001 04/01/2018

	Rates	Fringes
LABORER		
BUILDING & RESIDENTIAL CONSTRUCTION		
Hazardous Waste Handler.....	\$ 39.05	21.95+a
BUILDING & RESIDENTIAL CONSTRUCTION		
Air track operators, joy drill operators.....	\$ 37.90	21.95+a
All types of landscaping, pit men, dump men, building laborers (clean up), Flag Persons.....	\$ 33.80	21.95+a
Blasters.....	\$ 37.05	21.95+a
Bull float man, stud or riveting gunman, all scalars, power buggy operators (all types), mixer men, (by machine or hand), power saw (all types), brush king, jackhammer, jib rig operators, pavement breakers, vibrator men, powder men, ramset operators, torchmen, cement spray men, gunite nozzle men, sandblasting, all other machine or semi-skilled and asbestos and hazardous waste removal;...	\$ 37.05	21.95+a
Form setter, liners, joint setters, top concrete men.....	\$ 37.35	21.95+a
Hod carriers, scaffold and runway men, steel rod carrriers, rip rap and dry stone layers, concrete laborer, mason tenders, piplayers, (all types), signal men, rail		

and fence men (all types), core drillers, wrecking and demolition men;.....\$ 36.81 21.95+a  
 HEAVY & HIGHWAY CONSTRUCTION

Hazardous Waste Handler  
 Category A:.....\$ 41.50 23.30+a  
 Category B:.....\$ 41.50 23.30+a  
 Category C:.....\$ 41.50 23.30+a  
 Category D:.....\$ 41.50 23.30+a  
 HEAVY & HIGHWAY CONSTRUCTION  
 GROUP 1.....\$ 45.00 23.30+a  
 GROUP 2.....\$ 41.50 23.30+a  
 GROUP 3.....\$ 39.75 23.30+a  
 GROUP 4.....\$ 36.20 23.30+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving day; Christmas Day, President's Election Day; Non-Presidential Election day; and Veterans Day, provided the employee works two days or reported to work two days in the work week and was unable to work.

For HEAVY & HIGHWAY CONSTRUCTION

FOOTNOTE:

a. PAID HOLIDAYS: New Years Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, Christmas Day, President's Birthday, Presidential Election Day, Veterans Day provided the employee works one day in the calendar week during which the holiday occurs.

LABORERS HEAVY/HIGHWAY CLASSIFICATIONS

GROUP 1: Blasters

GROUP 2: Track Operator; Joy Drill Operator

GROUP 3: Nipper, Power Buggy Operator; Plaster Tender; Mixer Man (by Machine or hand); Scaffold Runway Man; Power Saw; Brush King; Steel Rod Carrier; Jack Hammer; Wagon Driller; Jib Rig Operator; Pavement Breaker; Vibrator Man; Bit Grinder; Powder Man; Ramset Operator; Rip Rap and Dry Stone Layer; Cement Spray Man; Gunnite Nozzle Man; Spray and

Nozzle Man on Mulching and Seeding Machine; Sand Blaster; Concrete Saw; All other Machine or Semi-Skilled Men; Asbestos and Hazardous Waste Removal; Concrete Laborer; Building Laborer; Mason Tender; Carpenter Tender; Pipe Layer (all types); Signal Man; Gabion Basket Assembler; Bull Float Man; Form Setter; Liner; Joint Setter; Sheeter; Tip Concrete Man; Stud or Riveting Gun Man; All Scalers; Asphalt Men (all types); Rail and Fence (all types); Core Driller; Wrecking and Demolition Man; Bar Man; Seeder; Planter; Landscape Men (all types), Ax Man; Pit and Dump Men; Road Laborer

GROUP 4: Flag Person

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 PAIN0009-010 05/01/2020

	Rates	Fringes
GLAZIER.....	\$ 46.55	44.77

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 PAIN0155-004 05/01/2018

	Rates	Fringes
Painters:		
Drywall Finisher.....	\$ 36.19	22.76
Lead Abatement Work.....	\$ 36.19	22.76
Painter/Paperhanger.....	\$ 36.19	22.76
Spray Rate.....	\$ 37.19	22.76

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 PAIN0806-001 10/01/2020

	Rates	Fringes
Painters:		
Structural Steel and Bridge.	\$ 51.50	49.63

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 PLUM0373-001 05/01/2019

	Rates	Fringes
PLUMBER		
PLUMBERS AND STEAMFITTERS...	\$ 46.92	39.72
REFRIGERATION.....	\$ 32.49	23.87
SINGLE FAMILY DWELLINGS.....	\$ 16.60	4.95

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 SFNY0669-002 01/02/2020

	Rates	Fringes
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SPRINKLER FITTER.....\$ 45.52 25.95

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SHEE0038-001 07/01/2020

Rates Fringes

Sheet metal worker.....\$ 46.92 42.55

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TEAM0445-001 05/01/2019

Rates Fringes

Truck drivers:

GROUP 1.....	\$ 33.25	35.55+a
GROUP 1A.....	\$ 34.39	35.55+a
GROUP 2.....	\$ 32.69	35.55+a
GROUP 3.....	\$ 32.47	35.55+a
GROUP 4.....	\$ 32.36	35.55+a
GROUP 5.....	\$ 32.24	35.55+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Labor Day, President's Day, Presidential Election Day, Veterans Day, Decoration Day, Independence Day, Thanksgiving Day and Christmas Day provided the employee works two days in any calendar week during which the holidays occurs.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Drivers on Letourneau tractors, double barrel euclids, Athey wagons and similar equipment (except when hooked to scrapers), I-beam and pole trailers, drivers of road oil distributors, tire trucks and tractors and trailers with 5 axles and over, Articulated Back Dumps and Articulated Water Trucks.

GROUP 1A: Drivers on detachable Gooseneck Low bed Trailers rated over 35 tons.

GROUP 2: Drivers on all equipment 25 yards and over, up to and including 30 yard bodies and cable dump trailers and powder and dynamite trucks.

GROUP 3: Drivers on all equipment up to and including 24 yard bodies, mixer trucks, dump crete trucks and similar types of equipment, fuel trucks, batch trucks and all other tractor trailers.

GROUP 4: Drivers on tri axles, ten-wheelers, grease trucks and tillermen.

GROUP 5: Drivers on pick-up trucks used for materials & parts, drivers on escort man over-the-road and drivers on straight trucks.

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

## Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

## Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

## Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date

for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

# **GOSR Supplementary Conditions**

**EXHIBIT E**

**SUPPLEMENTARY CONDITIONS FOR CONTRACTS**

## DEFINITIONS

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“GOSR”: Governor’s Office of Storm Recovery and its successors and assigns, as well as the Housing Trust Fund Corporation and its successors and assigns, and its parent entities and their successors and assigns.

“Subrecipient”: \_\_\_\_\_

“Contractor”: \_\_\_\_\_

When these Supplementary Conditions are attached to any lower tier contract (e.g., a contract between Contractor (as defined above) and any subcontractor, or between Contractor’s direct or indirect subcontractors), references herein to “Subrecipient” shall be deemed to refer to the party seeking products and/or services, and references to “Contractor” shall be deemed to refer to the party providing products and/or services, and references to the “Agreement” or “Contract” or “contract” shall be deemed to refer to the agreement between such subcontracting parties.

## ORDER OF PRECEDENCE

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In the event of a conflict between the terms of these Supplementary Conditions and the terms of the remainder of the contract (including any other attachments thereto and amendments thereof), the terms of these Supplementary Conditions shall control.

In the event of a conflict among the requirements found in these Supplementary Conditions, which conflict would make it impossible to comply with all of the requirements set forth herein, the provisions shall be applied with the following priority:

- (1) Part I: Required Federal Provisions; then
- (2) Part II: Required State Provisions;

and the remaining requirements shall be interpreted in a manner so as to allow for the terms contained therein to remain valid and consistent with such superseding provisions. If any provision of these Supplementary Conditions relates to a matter embraced by another provision(s) of these Supplementary Conditions, but is not in conflict therewith, all such provisions shall apply. Any question as to which requirements control in a particular instance which cannot be resolved by Contractor and Subrecipient shall be submitted in writing (indicating the issue and the applicable provisions) by Subrecipient to GOSR, which shall decide the applicable question.

## **PART I: REQUIRED FEDERAL PROVISIONS**

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The following terms and conditions apply to any contract for which any portion of the funding is derived from a grant made by the United States Department of Housing and Urban Development (“HUD”).

### **GENERAL CONDITIONS**

- 1. PROVISIONS REQUIRED BY LAW DEEMED INSERTED.** Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.
- 2. STATUTORY AND REGULATORY COMPLIANCE.** Contractor shall comply with all laws and regulations applicable to the Community Development Block Grant-Disaster Recovery funds appropriated by the Disaster Relief Appropriations Act, 2013 (Pub. L. 113-2), including but not limited to the applicable Office of Management and Budget Circulars, which may impact the administration of funds and/or set forth certain cost principles, including the allowability of certain expenses.
- 3. BREACH OF CONTRACT TERMS.** The Subrecipient and GOSR reserve their rights to all administrative, contractual, or legal remedies, including but not limited to suspension or termination of this contract, in instances where the Contractor or any of its subcontractors violate or breach any contract term. If the Contractor or any of its subcontractors violate or breach any contract term, they shall be subject to such sanctions and penalties as may be appropriate. The duties and obligations imposed by the contract documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.
- 4. REPORTING REQUIREMENTS.** The Contractor shall complete and submit all reports, in such form and according to such schedule, as may be required by the Subrecipient and GOSR. The Contractor shall cooperate with all Subrecipient and GOSR efforts to comply with HUD requirements and regulations pertaining to reporting, including but not limited to 2 CFR Part 200 and 24 C.F.R. § 570.507.
- 5. RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT.** Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the federal government, GOSR, and the Subrecipient in any resulting invention in accordance with 37 C.F.R. Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by HUD.

**6. DEBARMENT, SUSPENSION, AND INELIGIBILITY.** The Contractor represents and warrants that it and its subcontractors are not debarred or suspended or otherwise excluded from or ineligible for participation in federal assistance programs subject to 2 C.F.R. Part 2424. The Contractor shall notify the Subrecipient and GOSR should it or any of its subcontractors become debarred or suspended or otherwise excluded from or ineligible for participation in federal assistance programs subject to 2 C.F.R. Part 2424.

**7. CONFLICTS OF INTEREST.** The Contractor shall notify the Subrecipient as soon as possible if this contract or any aspect related to the anticipated work under this contract raises an actual or potential conflict of interest (as described in 2 CFR Part 200). The Contractor shall explain the actual or potential conflict in writing in sufficient detail so that the Subrecipient is able to assess such actual or potential conflict. The Contractor shall provide the Subrecipient any additional information necessary for the Subrecipient to fully assess and address such actual or potential conflict of interest. The Contractor shall accept any reasonable conflict mitigation strategy employed by the Subrecipient, including but not limited to the use of an independent subcontractor(s) to perform the portion of work that gives rise to the actual or potential conflict. If requested by GOSR, Contractor shall sign a certification affirming that it has no conflict of interest arising from performance of work on a specific task.

**8. SUBCONTRACTING.** The Contractor represents to the Subrecipient that all work shall be performed by personnel experienced in the appropriate and applicable profession and areas of expertise, taking into account the nature of the work to be performed under this contract.

The Contractor will include these Required Federal Provisions in every subcontract issued by it so that such provisions will be binding upon each of its subcontractors as well as the requirement to flow down such terms to all lower-tiered subcontractors.

**9. ASSIGNABILITY.** The Contractor shall not assign any interest in this contract, and shall not transfer any interest in the same (whether by assignment or novation) without prior written approval of the Subrecipient.

**10. INDEMNIFICATION.** The Contractor shall indemnify, defend, and hold harmless the Subrecipient, GOSR, and their agents and employees from and against any and all claims, actions, suits, charges, and judgments arising from or related to the negligence or willful misconduct of the Contractor in the performance of the services called for in this contract.

**11. TERMINATION FOR CAUSE (Applicable to contracts exceeding \$10,000).** If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner his obligations under this contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this contract, the Subrecipient shall thereupon have the right to terminate this contract by giving written notice to the Contractor of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports prepared by the Contractor under this contract shall, at the option of the Subrecipient, become the Subrecipient's property and the Contractor

shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder. Notwithstanding the above, the Contractor shall not be relieved of liability to the Subrecipient for damages sustained by the Subrecipient by virtue of any breach of the contract by the Contractor, and the Subrecipient may withhold any payments to the Contractor for the purpose of set-off until such time as the exact amount of damages due the Subrecipient from the Contractor is determined.

**12. TERMINATION FOR CONVENIENCE (Applicable to contracts exceeding \$10,000).**

The Subrecipient may terminate this contract at any time by giving at least ten (10) days' notice in writing to the Contractor. If the contract is terminated by the Subrecipient as provided herein, the Contractor will be paid for the time provided and expenses incurred up to the termination date.

**13. LOBBYING (Applicable to contracts exceeding \$100,000).** The Contractor certifies, to the best of his or her knowledge and belief, that:

- A. No federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
- B. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- C. The Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

**14. BONDING REQUIREMENTS (Applicable to construction and facility improvement contracts exceeding \$100,000).** The Contractor shall comply with New York State bonding requirements, unless they have not been approved by HUD, in which case the Contractor shall comply with the following minimum bonding requirements:

- A. A bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
- B. A performance bond on the part of the Contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the Contractor’s obligations under such contract.
- C. A payment bond on the part of the Contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

**15. ACCESS TO RECORDS.** The Subrecipient, GOSR, HUD, the Comptroller General of the United States, or any of their duly authorized representatives, shall have, at any time and from time to time during normal business hours, access to any work product, books, documents, papers, and records of the Contractor which are related to this contract, for the purpose of inspection, audits, examinations, and making excerpts, copies and transcriptions.

**16. MAINTENANCE/RETENTION OF RECORDS.** Contractor shall retain all financial records, supporting documents, statistical records, and all other records pertinent to the Agreement (collectively, the “Records”) (i) for three (3) years from the time of closeout of HUD’s grant to the State or for the period provided in the CDBG regulations at 24 CFR 570.487 (or other applicable laws and program requirements) and 24 CFR 570.488, or (ii) for six (6) years after the closeout of a CDBG-DR funded project pursuant to 42 USC 12707(a)(4) and New York Civil Practice Law and Rules § 213, whichever may be longer, provided that Section 1 of the Required State Provisions herein is also satisfied.

### **CIVIL RIGHTS AND DIVERSITY PROVISIONS**

**17. SMALL AND MINORITY FIRMS, WOMEN’S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS.** The Contractor will comply with the small and minority firms, women’s business enterprise, and labor surplus area requirements as set forth at 2 CFR Part 200. Contractor will use its best efforts to afford small businesses, minority business enterprises, and women’s business enterprises the maximum practicable opportunity to participate in the performance of the contract. As used in these Required Federal Provisions, the terms “small business” means a business that meets the criteria set forth in Section 3(a) of the Small Business Act, as amended (15 U.S.C. § 632), and “minority and women’s business enterprise” means a business at least fifty-one (51) percent owned and controlled by minority group members or women. For the purpose of this definition, “minority group members” are Afro-Americans, Spanish-speaking, Spanish surnamed, or Spanish-heritage Americans, Asian-

Americans, and American Indians. Subrecipient may rely on written representations by businesses regarding their status as minority and female business enterprises in lieu of an independent investigation.

The Contractor will take necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used in subcontracting when possible. Steps include:

- A. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- B. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- C. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
- D. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises; and
- E. Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

**18. TITLES VI AND VIII OF THE CIVIL RIGHTS ACT OF 1964 AND EXECUTIVE ORDER 11063.** The Contractor shall comply with the provisions of Titles VI and VIII of the Civil Rights Act of 1964 and with Executive Order 11063. No person shall, on the grounds of race, color, religion, sex, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. No person shall, on the grounds of race, color, religion, sex, or national origin, be discriminated against in the sale, rental, or financing of dwellings. To the extent that any such sale, lease or other transfer of land shall occur, Contractor, in undertaking its obligation to carry out the Program assisted hereunder, will not itself so discriminate.

**19. SECTION 109 OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974.** The Contractor shall comply with the provisions of Section 109 of the Housing and Community Development Act of 1974. No person in the United States shall on the grounds of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title. Section 109 further provides that discrimination on the basis of age under the Age Discrimination Act of 1975 or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, as amended, is prohibited.

**20. SECTION 504 OF THE REHABILITATION ACT OF 1973 AND THE AMERICANS WITH DISABILITIES ACT OF 1990.** The Contractor shall comply with

section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794), as amended, and any applicable regulations, and with the Americans with Disabilities Act of 1990 (42 U.S.C. § 126), as amended, and any applicable regulations

The Contractor agrees that no qualified individual with handicaps shall, solely on the basis of handicap, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity that receives federal financial assistance from HUD.

**21. AGE DISCRIMINATION ACT OF 1975.** The Contractor shall comply with the Age Discrimination Act of 1975 (42 U.S.C. § 6101 et seq.), as amended, and any applicable regulations. No person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity receiving federal financial assistance.

**22. NONDISCRIMINATION.**

The Contractor shall comply with the non-discrimination in employment and contracting opportunities laws, regulations, and executive orders referenced in 24 C.F.R. § 570.607. The applicable non-discrimination provisions in Section 109 of the Housing and Community Development Act of 1974 are still applicable. The Contractor shall comply with all other federal statutory and constitutional non-discrimination provisions. During the performance of this contract, the Contractor agrees as follows:

- A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- C. The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a

part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

- D. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- E. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- F. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- G. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- H. The Contractor will include the portion of the sentence immediately preceding paragraph (A) and the provisions of paragraphs (A) through (H) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

With respect to construction contracts and subcontracts exceeding \$10,000, The Contractor shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967; Executive Order

11478 of August 8, 1969; Executive Order 12107 of December 28, 1978; Executive Order 12086 of October 5, 1978; and as supplemented in Department of Labor regulations (41 C.F.R. Part 60). Subrecipient shall include the following Specifications, which are required pursuant to 41 CFR 60-4.3 in all federally assisted contracts and subcontracts. For the purposes of the Equal Opportunity Construction Contract Specifications and Clause below, the term “Construction Work” means the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.

**Standard Federal Equal Employment Opportunity Construction Contract Specifications for Contracts and Subcontracts in Excess of \$10,000. (Federal Notice Required by 41 CFR 60-4.3)**

1. As used in these specifications:
  - a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;
  - b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
  - c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
  - d. “Minority” includes:
    - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
    - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
    - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
    - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the contractor or any subcontractor at any tier, subcontracts a portion of the work involving any Construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Agreement resulted.
3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or

through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this Agreement resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each Construction trade in which it has employees in the covered area. Covered Construction contractors performing Construction Work in geographical areas where they do not have a Federal or federally assisted Construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each

Construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where Construction Work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of Construction Work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with

other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female Construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the Program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246 or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, Construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of

requirements for hiring of local or other areas residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**23. CERTIFICATION OF NONSEGREGATED FACILITIES (Applicable to construction contracts exceeding \$10,000).** The Contractor certifies that it does not maintain or provide for its establishments, and that it does not permit employees to perform their services at any location, under its control, where segregated facilities are maintained. It certifies further that it will not maintain or provide for employees any segregated facilities at any of its establishments, and it will not permit employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this certification is a violation of the nondiscrimination clause of this contract.

As used in this certification, the term “segregated facilities” means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason.

The Contractor further agrees that (except where it has obtained for specific time periods) it will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the nondiscrimination clause; that it will retain such certifications in its files; and that it will forward the preceding notice to such proposed subcontractors (except where proposed subcontractors have submitted identical certifications for specific time periods).

**24. SECTION 503 OF THE REHABILITATION ACT OF 1973 (Applicable to contracts exceeding \$10,000).** The Contractor shall comply with section 503 of the Rehabilitation Act of 1973 (29 U.S.C. § 793), as amended, and any applicable regulations.

A. The Contractor will not discriminate against any employee or applicant for employment because of physical or mental disability in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with disabilities without discrimination based on their physical or mental disability in all employment practices, including the following:

1. Recruitment, advertising, and job application procedures;
2. Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;
3. Rates of pay or any other form of compensation and changes in compensation;
4. Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;
5. Leaves of absence, sick leave, or any other leave;

6. Fringe benefits available by virtue of employment, whether or not administered by the Contractor;
  7. Selection and financial support for training, including apprenticeship, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;
  8. Activities sponsored by the Contractor including social or recreational programs; and
  9. Any other term, condition, or privilege of employment.
- B. The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the act.
- C. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the act.
- D. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, provided by or through the contracting officer. Such notices shall state the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants with disabilities. The Contractor must ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair).
- E. The Contractor will notify each labor organization or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of section 503 of the Rehabilitation Act of 1973, as amended, and is committed to take affirmative action to employ and advance in employment individuals with physical or mental disabilities.
- F. The Contractor will include the provisions of this clause in every subcontract or purchase order in excess of \$10,000, unless exempted by the rules, regulations, or orders of the Secretary issued pursuant to section 503 of the act, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Deputy Assistant Secretary for Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

**25. SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968 (Applicable to contracts exceeding \$100,000 in value for housing construction, rehabilitation, or other public construction).**

- A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. § 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- B. The parties to this contract agree to comply with HUD's regulations in 24 C.F.R. Part 135, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.
- C. The Contractor agrees to send to each labor organization or representative of workers with which the Contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, the availability of apprenticeship and training positions, the qualifications for each, the name and location of the person(s) taking applications for each of the positions, and the anticipated date the work shall begin.
- D. The Contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 C.F.R. Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 C.F.R. Part 135. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 C.F.R. Part 135.
- E. The Contractor will certify that any vacant employment positions, including training positions, that are filled: (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 C.F.R. Part 135 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 C.F.R. Part 135.
- F. Noncompliance with HUD's regulations in 24 C.F.R. Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- G. With respect to work performed in connection with Section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible: (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of

contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 and section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

H. Irrespective of any applicable federal reporting requirements as noted in the statutory language above or otherwise, Contractor shall submit quarterly reports along with any supporting documentation, in a form acceptable to Subrecipient, of its Section 3 compliance efforts to Subrecipient. Contractor may be required to consolidate all reports received from subcontractors and lower-tiered subcontractors into a single report or several reports as reasonably requested by Subrecipient. Notwithstanding the provision of such reports and supporting documentation, Contractor shall maintain copies of all reports and supporting documents as set forth in these Supplementary Conditions.

**26. FAIR HOUSING ACT.** Contractor shall comply with the provisions of the Fair Housing Act of 1968 as amended. The act prohibits discrimination in the sale or rental of housing, the financing of housing or the provision of brokerage services against any person on the basis of race, color, religion, sex, national origin, handicap or familial status. Contractor shall comply with the provisions of the Equal Opportunity in Housing Act, which prohibits discrimination against individuals on the basis of race, color, religion, sex or national origin in the sale, rental, leasing or other disposition of residential property, or in the use or occupancy of housing assisted with federal funds.

### **LABOR PROVISIONS**

**27. COPELAND “ANTI-KICKBACK” ACT (Applicable to all construction or repair contracts).** Salaries of personnel performing work under this contract shall be paid unconditionally and not less often than once a month without payroll deduction or rebate on any account except only such payroll deductions as are mandatory by law or permitted by the applicable regulations issued by the Secretary of Labor pursuant to the Copeland “Anti-Kickback Act” of June 13, 1934 (48 Stat. 948; 62 Stat. 740; 63 Stat. 108; 18 U.S.C. § 874; and 40 U.S.C. § 276c). The Contractor shall comply with all applicable “Anti-Kickback” regulations and shall insert appropriate provisions in all subcontracts covering work under this contract to ensure compliance by subcontractors with such regulations, and shall be responsible for the submission of affidavits required of subcontractors thereunder except as the Secretary of Labor may specifically provide for variations of or exemptions from the requirements thereof.

**28. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (Applicable to construction contracts exceeding \$2,000 and contracts exceeding \$2,500 that involve the employment of mechanics or laborers).** The Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-330) as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

All laborers and mechanics employed by contractors or subcontractors shall receive overtime compensation in accordance with and subject to the provisions of the Contract Work Hours and Safety Standards Act, and the contractors and subcontractors shall comply with all regulations issued pursuant to that act and with other applicable federal laws and regulations pertaining to labor standards.

**29. DAVIS-BACON ACT AND OTHER LABOR COMPLIANCE (Applicable to construction contracts exceeding \$2,000 when required by federal program legislation).**

The Contractor shall comply with the Davis Bacon Act (40 U.S.C. §§ 276a to 276a-7) as supplemented by Department of Labor regulations (29 C.F.R. Part 5), and all other applicable federal, state, and local laws and regulations pertaining to labor standards insofar as they apply to the performance of this agreement. In addition, Contractor shall comply with the Federal Labor Standards Provisions set forth in Form HUD-4010, available at [http://portal.hud.gov/hudportal/documents/huddoc?id=DOC\\_12586.pdf](http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12586.pdf).

All laborers and mechanics employed by contractors or subcontractors, including employees of other governments, on construction work assisted under this contract, and subject to the provisions of the Federal acts and regulations listed in this paragraph, shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis Bacon Act. The Contractor shall maintain documentation that demonstrates compliance with hour and wage requirements of this part. Such documentation shall be made available to Subrecipient and GOSR for review upon request.

If Contractor is engaged under a contract in excess of \$2,000 for construction, renovation, or repair work financed in whole or in part with assistance provided by GOSR, Contractor agrees, except with respect to the rehabilitation or construction of residential property containing less than eight (8) units, to comply and to cause all subcontractors engaged under such contracts to comply with federal requirements adopted by GOSR pertaining to such contracts and with the applicable requirements of the Department of Labor under 29 C.F.R. Parts 1, 3, 5, and 7 governing the payment of wages and ratio of apprentices and trainees to journey workers; provided that, if wage rates higher than those required under the regulations are imposed by state or local law, nothing hereunder is to relieve Contractor of its obligation, if any, to require payment of the higher wage. Contractor shall cause or require to be inserted in full, in all such contracts subject to such regulations, provisions meeting the requirements of this paragraph.

**ENVIRONMENTAL PROVISIONS**

**30. ENERGY EFFICIENCY.** The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the New York State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

**31. SOLID WASTE DISPOSAL.** Pursuant to 2 CFR § 200.322, Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (codified at 42 USC § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

**32. CERTIFICATION OF COMPLIANCE WITH ENVIRONMENTAL LAWS.**

The Contractor and all subcontractors agree to comply with the following requirements (and their state and/or local counterparts or analogues, if any) insofar as they apply to the performance of this Agreement as any of the following may hereinafter be amended, superseded, replaced, or modified:

- A. Executive Order 11988, Floodplain Management, May 24, 1977 (42 FR 26951, 3 C.F.R., 1977 Comp., p. 117, as interpreted at 24 C.F.R. Part 55), and Executive Order 11990, Protection of Wetlands, May 24, 1977 (42 FR 26961, 3 C.F.R., 1977 Comp., p. 121);
- B. Coastal Zone Management Act of 1972, as amended (16 U.S.C. § 1451 *et seq.*);
- C. Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300(f) *et seq.*, and 21 U.S.C. § 349, as amended), and EPA regulations for Sole Source Aquifers (40 C.F.R. Part 149);
- D. Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*);
- E. Wild and Scenic Rivers Act of 1968, as amended (16 U.S.C. § 1271 *et seq.*);
- F. Clean Air Act, as amended (42 U.S.C. § 7401 *et seq.*);
- G. EPA regulations for Determining Conformity of Federal Actions to State or Federal Implementation Plans (40 C.F.R. Parts 6, 51, and 93);
- H. Farmland Protection Policy Act of 1981 (7 U.S.C. § 4201 *et seq.*), and USDA regulations at 7 C.F.R. Part 658;
- I. HUD criteria and standards at 24 C.F.R. Part 51;
- J. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Feb. 11, 1994 (59 FR 7629, 3 C.F.R., 1994 Comp. p. 859);
- K. Flood Disaster Protection Act of 1973, as amended (42 U.S.C. § 4001-4128);

- L. National Flood Insurance Reform Act of 1994 (42 U.S.C. § 5154a);
- M. Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. § 3501);
- N. Runway Clear Zone regulations (24 C.F.R. Part 51);
- O. Federal Water Pollution Control Act, as amended (33 U.S.C. § 1251, *et seq.*), commonly known as the Clean Water Act, and all regulations and guidelines issued thereunder;
- P. Environmental Protection Agency (“EPA”) regulations at 40 C.F.R Part 50, as amended;
- Q. HUD regulations at 24 C.F.R. Part 51, Subpart B, and New York State and local laws, regulations, and ordinances related to noise abatement and control, as applicable;
- R. HUD regulations at 24 C.F.R. Part 51 Subpart C regarding siting of projects near hazardous operations handling conventional fuels or chemicals of an explosive or flammable nature;
- S. HUD and EPA regulations related to asbestos-containing material and lead-based paint, including but not limited to Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York Department of Labor (12 NYCRR 56), the National Emission Standard for Asbestos (40 C.F.R. § 61.145), the National Emission Standard for Asbestos (40 C.F.R. § 61.150), and 24 C.F.R. Part 35 Subparts B, H, and J; and
- T. All other applicable environmental laws that may exist now or in the future.

Further, Contractor shall abide by any conditions or requirements set forth in any environmental review performed pursuant to 24 C.F.R. Part 58, which are HUD’s regulations for Responsible Entities implementing the National Environmental Policy Act.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall furnish to the Subrecipient, the following:

- A. A stipulation by the Contractor or subcontractors, that any facility to be utilized in the performance of any nonexempt contract or subcontract, is not listed on the Excluded Party Listing System pursuant to 40 C.F.R. Part 32 or on the List of Violating Facilities issued by the EPA pursuant to 40 C.F.R. Part 15, as amended.
- B. Agreement by the Contractor to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 U.S.C. § 1857 c-8) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 U.S.C. § 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

- C. A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the contract, is under consideration to be listed on the Excluded Party Listing System or the EPA List of Violating Facilities.
  
- D. Agreement by the Contractor that he will include, or cause to be included, the criteria and requirements in paragraphs A through D of this section in every nonexempt subcontract and requiring that the Contractor will take such action as the government may direct as a means of enforcing such provisions.

## PART II: REQUIRED STATE PROVISIONS

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The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "Contract") agree to be bound by the following clauses which are hereby made a part of the Contract.

**1. ACCOUNTING RECORDS.** The Contractor shall establish and maintain complete Records, including accurate books, records, documents, accounts and other evidence directly pertinent to performance of work done for the Subrecipient under this Contract consistent with generally accepted bookkeeping practices. Subrecipient shall retain the Records, including all financial records, supporting documents, statistical records, and all other records pertinent to the Agreement (i) for three (3) years from the time of closeout of HUD's grant to the State or for the period provided in the CDBG regulations at 24 CFR 570.487 (or other applicable laws and program requirements) and 24 CFR 570.488, or (ii) for six (6) years after the completion of a CDBG-DR funded project pursuant to 42 USC 12707(a)(4) and New York Civil Practice Law and Rules § 213, whichever may be longer, provided that Section 16 of the Required Federal Provisions herein is also satisfied. The Subrecipient, GOSR, and any person or entity authorized to conduct an examination shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The Subrecipient and GOSR shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform the Subrecipient and GOSR, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the Subrecipient's or GOSR's right to discovery in any pending or future litigation.

**2. NON-ASSIGNABILITY.** This Contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or disposed of without the previous consent in writing of the Subrecipient and GOSR, and any attempts to assign the Contract without such written consent are null and void. However, this Contract shall be binding upon and inure to the benefit of the Subrecipient and GOSR, and their successors and assigns.

**3. INDEMNITY.** The Contractor shall indemnify and hold New York State and the Housing Trust Fund Corporation and their employees, officers, Members and Directors (collectively, the "Indemnities") harmless from and against all claims, demands, liability, loss, cost, damage or expense, including attorney's fees, which may be incurred by the Indemnities because of negligence or malfeasance on the part of the Contractor arising out of this Contract.

**4. NON-DISCRIMINATION.** To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other state and federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any

employee or applicant for employment because of race, creed, color, sex (including gender identity or expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status, domestic violence victim status, pregnancy, religious practice, presence of a service animal, or criminal conviction. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this Contract. Contractor is subject to fines of \$50 per person per day for any violation of Section 239 as well as possible termination of this Contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

If directed to do so by the State Commissioner of Human Rights (“Commissioner”), the Contractor will send to each labor union to which the Contractor is bound a notice provided by the Commissioner advising of this provision. The Contractor will keep posted in conspicuous places notices of the Commissioner regarding laws against discrimination. The Contractor will state in all advertisements for employees that all qualified applicants will be afforded equal opportunities without discrimination because of race, creed, color, sex, national origin, sexual orientation, age, disability, genetic predisposition or carrier status, or marital status.

If the Contractor has fifteen or more employees, it is an unlawful employment practice for the Contractor to fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual with respect to the individual’s compensation, terms, conditions, or privileges of employment, or to limit, segregate, or classify employees or applicants for employment in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect an individual’s status as an employee, because of such individual’s race, color, religion, sex, or national origin, or because an individual opposed any practice made unlawful by Title VII of the Civil Rights Act of 1964, as amended, or because he or she made a charge, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under that Title, and that it shall be an unlawful employment practice to print or publish or cause to be printed or published any notice or advertisement relating to employment indicating any preference, limitation, specification, or discrimination on the basis of race, color, religion, sex, or national origin.

If the Contractor has fifteen or more employees, the Contractor: (1) will make and keep such records relevant to the determinations of whether unlawful employment practices have been or are being committed; (2) will preserve such records for such periods as the Equal Employment Opportunity Commission (“EEOC”) shall prescribe by regulation; (3) will make such reports therefrom as the EEOC shall prescribe by regulation or order; (4) must post and keep posted in conspicuous places upon its premises where notices to employees and applicants for employment are customarily posted a notice prepared or approved by the EEOC setting forth excerpts from, or summaries of, pertinent provisions of Title VII of the Civil Rights Act of 1964, as amended, and information pertinent to the filing of a complaint.

To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other state and federal statutory and constitutional non-discrimination provisions, the Contractor will comply with all non-discriminatory employment practices, will furnish all information deemed necessary by the Commissioner, and will permit the Commissioner access to its records to ascertain compliance. The Contractor will bind all subcontractors hired to perform services in connection with this Contract to the requirements of this section, take such action for enforcement as the Commissioner may direct, and notify the Commissioner if such action results in litigation. This Contract may be terminated by Subrecipient upon the Commissioner's finding of non-compliance with this section, and the Contractor may be declared ineligible for future contracts with an agency of the state or a public authority until the Contractor satisfies the Commissioner of compliance.

**5. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.**

In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this Contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby the Agency or Agencies, is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the Agency or Agencies, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

- A. The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on Subrecipient's contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;
- B. At the request of the Subrecipient or GOSR, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and
- C. The Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of this Contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of A through C above in every subcontract. Section 312 does not apply to: (i) work, goods or services unrelated to this Contract; or (ii) employment

outside New York State. Subrecipient and GOSR shall consider compliance by a Contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. The Subrecipient and GOSR shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, Subrecipient and GOSR shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

**6. OPPORTUNITIES FOR MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES.** Contractor shall make a good faith effort to solicit active participation by enterprises identified in the New York State Minority and Women-Owned Business Enterprises Directory of Certified Firms in order to promote Subrecipient's obligation to make good-faith efforts to promote and assist the participation of certified M/WBEs through the use of contractors and their subcontractors in an amount equal to fifteen percent (15%) minority-owned business enterprises ("MBE") and fifteen percent (15%) women-owned business enterprises ("WBE").

Contractor agrees to be bound by the provisions of Section 316 of Article 15-A of the Executive Law, which pertain to enforcement of Article 15-A.

**7. PROPRIETARY INFORMATION.** All memoranda, analyses, spreadsheets and other pertinent documents or writings, including reports and financial statements developed or prepared by, or for, the Contractor in connection with the performance of this Contract are "Proprietary Information" and shall be, and remain, the property of the Subrecipient. All original documents constituting Proprietary Information shall be delivered to the Subrecipient by the Contractor, or any subcontractor, or any other person possessing them, upon the termination of this Contract or upon the earlier request of the Subrecipient, except that the Contractor may retain copies for its files. Proprietary Information may not be utilized, disclosed or otherwise made available to other persons by the Contractor without the prior written approval of the Subrecipient. The provisions of this section shall be in addition to, and not in derogation of, any duty imposed upon the Contractor by any law, regulation or rule governing professional conduct respecting confidentiality.

**8. COPYRIGHT.** If this Agreement results in any copyrightable material or inventions, the Subrecipient, GOSR, and/or HUD reserve the right to royalty-free, non-exclusive and irrevocable license to reproduce, publish or otherwise use and to authorize others to use, the work or materials for governmental purposes. This clause shall survive indefinitely the termination of this Agreement for any reason.

**9. ENVIRONMENTAL LAWS.** Contractor shall comply with any and all applicable New York State and local environmental laws, including all permits and approvals issued thereunder. Additionally, Contractor shall comply with any and all conditions or requirements set forth in an environmental review performed pursuant to the State Environmental Quality Review Act.

**10. SECTION HEADINGS.** The caption of sections in this Contract are inserted solely for convenience of reference and are not intended to define, limit, or describe the scope of this Contract or any provision hereof or to otherwise affect this Contract in any way. The section headings shall not be considered in any way in construing this Contract.

**11. COUNTERPARTS.** This Contract may be executed in any number of counterparts. Each such counterpart shall be deemed to be a duplicate original. All such counterparts shall constitute but one and the same instrument.

**12. GOVERNING LAW.** This Contract has been executed and delivered in, and shall be construed and enforced in accordance with the laws of, the State of New York. In the event of conflict between New York State law and federal laws and regulations, the latter shall prevail.

**13. WORKERS' COMPENSATION.** This Contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this Contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

**14. NO ARBITRATION.** Disputes involving this Contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.

**15. SERVICE OF PROCESS.** In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), the Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service of process hereunder shall be complete upon the Contractor's actual receipt of process or upon the Subrecipient's receipt of the return thereof by the United States Postal Service as refused or undeliverable. The Contractor must promptly notify the Subrecipient, in writing, of each and every change of address to which service of process can be made. Service of process by the Subrecipient to the last known address shall be sufficient. The Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

**16. NON-COLLUSIVE BIDDING CERTIFICATION.** If this Contract was awarded based upon the submission of a bid or proposal, the Contractor affirms, under penalty of perjury, that the prices in its bid or proposal were arrived at independently, without collusion, consultation, communication, or agreement, for the purpose of restricting competition, or as to any matter relating to such prices with any other Contractor or with any competitor.

**17. LOBBYING REFORM LAW DISCLOSURE.** If the procurement of the goods or services provided herein were applicable to Lobbying Reform Law Disclosure as pursuant to State Finance Law §§139-j and 139-k, the Subrecipient reserves the right to terminate this Contract in the event it is found that the certification filed by the Offerer/Bidder in accordance with New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, the Subrecipient may exercise their termination right by providing written notification to the Contractor.

**18. MACBRIDE FAIR EMPLOYMENT PRINCIPLES.** In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

**19. GENERAL RESPONSIBILITY LANGUAGE.** The Contractor shall at all times during Contract term remain responsible. The Contractor agrees, if requested by Subrecipient or GOSR, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

For purposes of this Agreement, Contractor responsibility generally means that the Contractor has the integrity to justify the award of public dollars and the capacity to perform the requirements of this Contract fully. In connection herewith, to the extent that the Subrecipient may make certain determinations with respect to Contractor responsibility, wherein the Subrecipient determines whether it has reasonable assurances that a Contractor is responsible, is an important part of the procurement process, promoting fairness in contracting, mitigating contract issues, and protecting the Contractor and the Subrecipient against failed contracts. In making such a responsibility determination, the Subrecipient shall evaluate the Contractor's responsibility with respect to four factors: (i) financial and organizational capacity; (ii) legal authority to do business in New York State; (iii) integrity; and (iv) previous performance.

**20. SUSPENSION OF WORK (for Non-Responsibility).** The Subrecipient reserves the right to suspend any or all activities under this Contract, at any time, when the Subrecipient discovers information that calls into question the responsibility of the Contractor. In the event of such suspension, the Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Contractor must comply with the terms of the suspension order. Contract activity may resume at such time as the Subrecipient issues a written notice authorizing a resumption of performance under the Contract.

**21. TERMINATION (for Non-Responsibility).** Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate Subrecipient staff, the Contract may be terminated by the Subrecipient at the Contractor's expense where the Contractor is determined by the Subrecipient to be non-responsible. In such event, the Subrecipient may complete the contractual requirements in any manner they deem advisable and pursue available legal or equitable remedies for breach.

**22. IRAN DIVESTMENT ACT.** By entering into this Agreement, Contractor certifies in accordance with State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf>

Contractor further certifies that it will not utilize on this Contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or

extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the Subrecipient.

During the term of the Contract, should the Subrecipient receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, the Subrecipient will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the Subrecipient shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

The Subrecipient reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

**PART III: INSURANCE**

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A. Unless otherwise directed by GOSR, Contractor shall procure and maintain without interruption, at its sole cost and expense, during the term of this Agreement (or any extensions thereof) and for a period of two years thereafter, insurance of the type, and with limits and deductibles, as follows:

- a. Commercial General Liability Insurance and Excess Liability Insurance. Providing both bodily injury (including death) and property damage insurance with limits in the aggregate and per occurrence in accordance with the following table:

Contract Value	Commercial General Liability in combination with Excess (Umbrella) Liability	
	Each Occurrence	General Aggregate
< \$10M	\$2,000,000	\$2,000,000
>\$10M - \$50M	\$5,000,000	\$5,000,000
>\$50M	\$10,000,000	\$10,000,000

Such insurance is to be written on an occurrence basis with defense outside of limits. New York State, the New York State Housing Trust Fund Corporation, and the Subrecipient shall each be named as an additional insured. The minimum required level of insurance may be provided through a combination of commercial general liability and umbrella and/or excess liability policies.

- b. Automobile Liability and Property Damage Insurance. In an amount not less than One Million Dollars (\$1,000,000) combined single limit for both Bodily Injury and Property Damage.
- c. Professional Liability. If the Contractor is engaged in providing professional services under this Agreement, professional errors and omissions coverage with a limit not less than Two Million Dollars (\$2,000,000) in the aggregate and One Million Dollars (\$1,000,000) per occurrence. If the Contractor is not engaged in providing professional services under this Agreement, this professional errors and omissions coverage is not required.
- d. Worker’s Compensation. Covering workers’ compensation and employers’ liability and disability benefits as required by the State of New York.

B. In addition to the foregoing, Contractor and any subcontractors shall procure and maintain any and all insurance which is required by any applicable current or future law, rule, regulation, ordinance, permit, license, order or other legal requirement.

C. All insurance shall be primary and non-contributory and shall waive subrogation against GOSR and the Subrecipient and all of either of their former, current, or future officers, directors, and employees. No deductible of more than \$50,000 shall be permitted without

advance written approval by GOSR, which GOSR may withhold, condition or deny in its sole and exclusive discretion.

- D. The Contractor shall provide Certificates of Insurance to GOSR and the Subrecipient prior to the commencement of work and shall provide full and complete copies of the actual policies and all endorsements upon request. Subcontractors under this Agreement shall be required to maintain insurance meeting all of the requirements set forth in Section A above for items a-d; however Contractor shall require subcontractors to maintain greater limits and/or other or additional insurance coverages if greater limits and/or other or additional insurance coverages are (a) generally imposed by the Contractor given its normal course of business for subcontracts for similar work or services to those being provided by the subcontractor at issue; or (b) reasonable and customary in the industry for similar work or services to those anticipated hereunder.
- E. If the above insurance requirements are potentially excessive because they exceed the type and/or amount of insurance which is reasonable and customary for similar work or services in the same general geographic area, Contractor shall, within fifteen (15) calendar days of the execution of this Agreement, provide written notice of the same to GOSR, along with a written summary of the type and amount of insurance Contractor believes is reasonable and customary for similar work or services in the same general geographic area. GOSR may, in GOSR's sole and exclusive discretion, but is under no obligation to, waive, decrease, or otherwise alter or amend the insurance requirements in light of this notice. However, notwithstanding anything to the contrary herein, nothing in this paragraph requires or shall be deemed to require GOSR to waive, decrease, alter or amend, in whole or in part, any insurance requirements as a result of the foregoing notice from Contractor or for any other reason, and no waiver, decrease, alteration or amendment shall be made except as approved in advance and in writing by GOSR.
- F. If the above insurance requirements are potentially inadequate because they do not meet or exceed the type and/or amount of insurance which is reasonable and customary for similar work or services in the same general geographic area, Contractor shall, within fifteen (15) calendar days of the execution of this Agreement, provide written notice of the same to GOSR, along with a written summary of the type and amount of insurance Contractor believes is reasonable and customary for similar work or services in the same general geographic area. GOSR may, in GOSR's sole and exclusive discretion, but is under no obligation to increase, supplement, expand, or otherwise alter or amend the insurance requirements in light of this notice. However, notwithstanding anything to the contrary herein, nothing in this paragraph requires or shall be deemed to require GOSR to increase, supplement, expand, or otherwise alter or amend, in whole or in part, any insurance requirements as a result of the foregoing notice from Contractor or for any other reason, and no increase, supplement, expansion or other alteration or amendment shall be made except in an amendment to this Agreement, as approved in advance and in writing by GOSR.

## PART IV: REPORTING

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**Elation Systems, Inc.** is a provider of cloud-based diversity and labor compliance reporting and management services. The Governor's Office of Storm Recovery (GOSR) has adopted this web-based compliance management system to help all of its Contractors, Subrecipients, and Subrecipient's Contractors receiving federal funds to adhere to Labor Compliance (Davis-Bacon), Minority and Women Owned Business (MWBE) and Section 3 reporting requirements.

Contractors, Subrecipients, and Subrecipient's Contractors must comply with instructions from GOSR on how and when to meet all reporting requirements, and how to utilize Elation to satisfy those requirements.

To this end, all Contractors, Subrecipients, and Subrecipient's Contractors must register with Elation Systems and attend an online training on the use of this tool. GOSR offers a series of virtual training events. GOSR requires all parties receiving federal funds through GOSR programs to use the Elation Systems application to make reporting requirements easier, faster and simpler to complete.

Prior to participating in training, it is necessary to create an Elation account. An account may be created at <https://www.elationsys.com/app/Registration/>.

Questions related to reporting requirements should be directed to GOSR's Monitoring and Compliance team at [stormrecovery.dl.gosr-monitoring&compliance@stormrecovery.ny.gov](mailto:stormrecovery.dl.gosr-monitoring&compliance@stormrecovery.ny.gov).

# **GOSR Project Sign Requirements**



## NY RISING COMMUNITY RECONSTRUCTION PROGRAM PROJECT SIGN REQUIREMENTS

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All projects funded through GOSR are required to have a weatherproof outdoor project sign. The expense associated with meeting this requirement is an eligible expense and may be charged as a construction or an administrative expense. Specifications for project signs should conform to the following.

### A. Sign Specifications

#### Installation

1. Install sign at the site within one week of the start of construction.
2. Erect sign in a prominent location, secure from vandalism.

#### Materials

1. Signboard: 4' X 8', 3/4" plywood, MDO B-B EXT-APA.
2. Primer: As recommended by finish coat manufacturer for the substrate and finish material.
3. Lettering and striping shall be uniform with sharp, neat profiles.
4. "Optional Information" included on sign shall be visually subordinate to other information provided.
5. Supports: Treated D.F. posts.

#### Maintenance and Removal

1. Maintain the sign plumb and level for the duration of the work.
2. The sign must be removed from the property 60 days after final payment or project completion, whichever is later.

### B. Sign Design

The sign design layout must follow the sample layout shown below.

### C. Sign Placement

1. With respect to placement, traffic control signs, regulatory, warning, and guide signs have a higher priority than GOSR signage.
2. In no case shall these signs be placed such that they obscure road users' view of other traffic control devices.
3. GOSR signs should be placed where they can be easily identified with the corresponding projects.
4. If the placement of GOSR signs conflicts with newly installed higher priority signs, or traffic signals, or temporary traffic control devices, or other priority devices, the sign should be relocated.
5. Due to public safety concerns, GOSR signs should not be allowed at the following locations:
  - On the front, back, adjacent to or around any traffic control device, including traffic signs, signals, changeable message signs, traffic control device posts or structures, or bridge piers.
  - At key decision points where a driver's attention is more appropriately focused on traffic control devices, roadway geometry, or traffic conditions. These locations include, but are not limited to exit and entrance ramps, intersections controlled by traffic signals or by stop or yield signs, highway-rail grade crossings, and areas of limited sight distance.

# PUMP STATION • VILLAGE OF BAYVILLE, NY

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Governor Andrew M. Cuomo  
State of New York  
Governor's Office of Storm Recovery

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Governor's Office of  
Storm Recovery

Insert Subrecipient's  
Logo here



Insert Subrecipient Information here

For more information on this project, please visit [www.stormrecovery.ny.gov](http://www.stormrecovery.ny.gov)



This project is made possible by a grant from the State's Housing Trust Fund Corporation, funded by the U.S. Department of Housing and Urban Development Community Development Block Grant Disaster Recovery (CDBG-DR) Program



**M/WBE UTILIZATION  
PLAN**

**M/WBE UTILIZATION PLAN**

**INSTRUCTIONS:** This form is submitted at the time of bid or procurement submission, or at the time of contract execution, or within a reasonable time thereafter as outlined in procurement submission instructions. This Utilization Plan must contain a detailed description of the supplies and/or services to be provided by each certified Minority and Women-owned Business Enterprise (M/WBE) under the contract. Attach additional sheets if necessary.

Subrecipient Name:		Project Name:	
Offeror's Name:		Federal ID Number:	
Address:		Contract Number (if applicable):	
City State & Zip Code:		Phone:	
Location of Work:			

<i>M/WBE Target Goal</i>			<i>Proposed M/WBE Participation</i>		
<i>Category</i>	<i>Percentage</i>	<i>Amount</i>	<i>Category</i>	<i>Percentage</i>	<i>Amount</i>
<b>MBE:</b>	%	\$	<b>MBE:</b>	%	\$
<b>WBE:</b>	%	\$	<b>WBE:</b>	%	\$
<b>Totals:</b>	%	\$	<b>Totals:</b>	%	\$

1. Certified M/WBE Subcontractors/Suppliers Information:		Classification NYS-ESD Certified (Choose One Only)		Federal ID No. :	Detailed Description of Work:	Dollar Value of Subcontractors/ Supplies/Services	Intended performance dates on each component of the contract
		MBE	WBE				
A	Name:						
	Address:						
	Email:						
	Phone:						
B	Name:						
	Address:						
	Email:						
	Phone:						
C	Name:						
	Address:						
	Email:						
	Phone:						
D	Name:						
	Address:						
	Email:						
	Phone:						

<b>Contractor Use:</b>	
Name of Preparer:	
Authorized Signature:	
Date:	
Email:	
Phone:	

# **SECTION 3 PLAN**



[Name of Contractor]

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# Section 3 Plan

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Website: \_\_\_\_\_

Auth'd Representative: \_\_\_\_\_

Project Name: \_\_\_\_\_

SUBRECIPIENT NAME: (“Subrecipient”)  
CONTRACTOR NAME: (“Contractor”)  
PROJECT NAME: (the “Project”)

GENERAL POLICY STATEMENT

**Section 3 Policy Overview**

Section 3 (24 CFR Part 135.30) of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u)<sup>1</sup> is intended to ensure that, to the greatest extent feasible, low- and very low-income persons receive benefits in employment and related economic opportunities when such opportunities are generated by funding from HUD. It also specifically encourages economic opportunities for households who are recipients of government assistance for housing. The Section 3 program requires that recipients of HUD funds, to the greatest extent feasible, provide (a) employment and training and (b) contracting opportunities for low- or very low-income residents in connection with construction projects (“Section 3 eligible projects”) in their neighborhoods.

SECTION 3 PLAN & PURPOSE

This document serves as the Section 3 Plan for Contractor’s work on the Project in compliance with the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended. This document contains goal requirements for awarding contracts to Section 3 Business Concerns and employment opportunities for individuals.

The regulations should not be construed to mean that recipients are required to hire Section 3 residents or award contracts to Section 3 business concerns other than as needed to fulfill regulatory obligations for covered projects and activities. Contractors are not required to hire or enter into contracts with unqualified Section 3 residents or business concerns simply to meet the Section 3 goals, as anyone selected for contracting or employment opportunities must meet the qualifications for the job/contract being sought. However contractors must document their outreach efforts and, to the greatest extent feasible, attempt to source qualified Section 3 residents and business concerns to meet the goal. If the expenditure of funding for an otherwise covered project and activity does not result in new employment, contracting, or training opportunities, reporting is still required.

NUMERICAL GOALS FOR TRAINING AND EMPLOYMENT OPPORTUNITIES

These goals apply to contract awards in excess of \$100,000 in connection with a Section 3 eligible project. They apply to subrecipients and to their contractors and subcontractors.

Contractor will, to the greatest extent feasible, strive to comply with the goals established. The numerical goals established in this section represent minimum numerical targets for employment opportunities and training to Section 3 residents. A Section 3 resident is a public housing resident or a low-income or very low-income person who lives in the metropolitan area or non-metropolitan county where the Project is located. Local income levels for the Project area can be obtained online at <http://www.huduser.org/DATASETS/il.html>. The goals are as follows:

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<sup>1</sup> [http://portal.hud.gov/hudportal/documents/huddoc?id=DOC\\_12047.pdf](http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12047.pdf)

- Thirty Percent (30%) of the aggregate number of new hires/training opportunities resulting from funds awarded and continuing thereafter.

Any contractor that does not meet the Section 3 numerical goals must demonstrate why meeting the goals was not feasible.

For this contract on the Project, the Number of Section 3 jobs/training opportunities anticipated is           .

**NUMERICAL GOALS FOR CONTRACTING ACTIVITIES**

These goals apply to contract awards in excess of \$100,000 in connection with a Section 3 eligible project, and they apply to subrecipients, contractors, and subcontractors.

Contractor commits to award to Section 3 business concerns\*, through subcontracts:

- At least 10% of the total dollar amount of all Section 3 covered contracts for construction work arising in connection with housing rehabilitation, housing construction and other public construction; and
- At least 3% of the total dollar amount of non-construction contracts arising in connection with housing rehabilitation, housing construction and other public construction.

\*Section 3 Business Concerns are businesses that can provide evidence that they meet one of the following criteria:

- a) Business is 51 percent or more owned by Section 3 residents; or
- b) At least 30 percent of business' full time employees include persons that are currently Section 3 residents, or within three years of the date of first employment with the business concern were Section 3 residents; or
- c) Business provides evidence of commitment to sub-subcontract in excess of 25 percent of the dollar award of its subcontract to business concerns that meet the qualifications in the above two clauses a and b.

**EVIDENCE OF SECTION 3 CERTIFICATION**

Any individual seeking employment or training opportunities with Contractor shall complete a Self-Certification Form and provide adequate documentation as evidence of eligibility for preference under the Section 3 program.

Any business seeking Section 3 preference in the awarding of subcontracts or purchase agreements with Contractor shall complete the HUD Section 3 Business Registry. The business seeking Section 3 preference must be able to provide adequate documentation as supporting evidence.



**TABLE B**  
**PROJECT WORKFORCE DATA**

At Least Thirty Percent (30%) of the aggregate number of *new hires/training opportunities* resulting from funds awarded and continuing thereafter.

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Job Category	Total Estimated Positions	No. Positions Currently Occupied By Permanent Employees	No. Positions Not Currently Occupied	No. Positions To Be Filled w/Section 3 Residents*
Officers/Supervisors				
Professionals				
Technicians				
Housing Sales/Rental/Mgmt.				
Office Clerical				
Service Workers				
Others				

**TRADE:**

Journeyman				
Apprentices				
Maximum No. Trainees				
Others				

**TRADE:**

Journeyman				
Apprentices				
Maximum No. Trainees				
Others				

\*Section 3 Residents are either residents of public housing or low- or very low-income residents of the Metropolitan Area or non-metropolitan county where the Project is located.

\*\*Local Income levels can be obtained online at <https://www.huduser.gov/portal/datasets/il.html>

**LIST OF STRATEGIES TO BE ADOPTED FOR COMPLIANCE WITH THE STATED EMPLOYMENT, TRAINING AND CONTRACTING GOALS**

In compliance with Section 3 requirements, the Contractor should submit a current list of anticipated new hires as of the date the Section 3 Plan is submitted for approval. A list of employees can be submitted on the Worker Utilization Form included in the appendices **or** an official company form that includes the same information requested on the Worker Utilization Form. **The Contractor must also develop a list of strategies to be adopted for compliance with the stated employment, training and contracting goals.**

**PLEASE NOTE:** You may check off and initial your choices below from the following list of recommended strategies which may be employed to meet Section 3 goals.

<b>List of Strategies to choose from:</b>	<b>Check Mark</b>	<b>Initials</b>
Establish a Section 3 Coordinator.		
Develop a Section 3 Plan.		
Conduct pre-bid meeting and clearly articulate Section 3 requirements during meeting.		
Make the pre-bid meeting mandatory.		
Conduct networking event after pre-bid meeting.		
Utilize the GOSR <b>Local Workforce Opportunities Program</b> to recruit and attract Section 3 eligible applicants for posted positions.		
Forward procurements to Section 3 and small business concerns		
Forward RFPs to established list of Section 3 firms.		
Clearly indicate on all job applications and websites for job postings that the position is "A Section 3 eligible job opportunity."		
Identify existing employees that may be Section 3 workers.		
Identify existing subcontractors that may qualify as Section 3 businesses.		
Request current list of Section 3 eligible applicants and certified Section 3 businesses from local PHAs, chambers of commerce, ESD, and SBA.		
Advertise job and subcontracting opportunities in local, community papers and job boards in impacted areas and communities.		
Encourage participation in "Meet the Prime" events.		
Provide Subrecipient with acknowledgment of efforts to enforce Section 3		
Partner with the NY Division of Employment and Workforce Solutions ( <a href="http://labor.ny.gov/dews-index.shtm">http://labor.ny.gov/dews-index.shtm</a> ) to promote special advertisement of Section 3 job postings and opportunities.		
Pro-actively contact and engage organized labor and trade unions.		
Request candidates from Workforce One Career Centers near the Project area.		

The following questions and your responses may be used to identify additional strategies & details.

Q1: What actions will the Contractor take to recruit skilled workers and unskilled workers?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q2: Which resident associations and organizations will you contact?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q3: In which newspapers, magazines, journals or other periodicals will you advertise job openings?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q4: In which locations will you display recruitment posters?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q5: Which labor unions or apprentice programs will you contact?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q6: How else will you recruit Section 3 Residents?

Response: \_\_\_\_\_  
\_\_\_\_\_

Q7: Will you be reaching out to GOSR's Office of Diversity and Civil Rights for assistance in outreach events, training and support in approaching Union based training and apprenticeship programs?

Response: \_\_\_\_\_  
\_\_\_\_\_

### **SECTION 3 SUBMISSION OF SUPPORTING DOCUMENTATION**

The Contractor shall maintain copies of the following types of supporting documentation as applicable:

*The HUD-60002 form includes Part III Summary indicates supporting documentation is required.*

As Such, below are samples of the types of documentation applicable but not limited to the following:

- Reporting summary with metrics of strategies selected or described above
- A narrative that ties in all good faith effort components.
- Maintain a database of supporting raw data
- Copies of any Self Certification or Self-Affirmation forms for individuals and businesses.
- Completed Tables A and B (shown above) for all respective Contractors.

## SECTION 3 REPORTING & TRAINING

The Governor's Office of Storm Recovery (GOSR) has adopted a web-based compliance management system to help all its Contractors and Subrecipients receiving Federal CDBG-DR funds to adhere to Labor Compliance (Davis-Bacon), Minority and Women Owned Business (MWBE) and Section 3 Federal reporting requirements.

GOSR offers ***free virtual training sessions*** monthly. They are extensive, detailed and information rich. *Training events have duration of 2.5 hours.* We encourage you to attend as much training as needed and ask questions during your learning process.

Attendees ***must*** have an Elation Systems account. To ***register your organization/firm for a free account*** please go to <https://www.elationsys.com/app/Registration/> and follow the registration instructions to register either as an agency or project owner, or as a contractor. Once registered, you will receive an email inviting you to attend the next scheduled webinar.

We offer two types of training sessions:

- **Contractor Training:** Payroll and Accounts company employees
- **Subrecipient Training:** Project Owners/Manager(s) and or Construction Manager(s)

<b>2016 Training Calendar</b>	
<b>Contractors</b>	<b>Subrecipients</b>
January 6 <sup>th</sup>	January 27 <sup>th</sup>
February 3 <sup>rd</sup>	February 24 <sup>th</sup>
March 2 <sup>nd</sup>	March 30 <sup>th</sup>
April 6 <sup>th</sup>	April 27 <sup>th</sup>
May 4 <sup>th</sup>	May 25 <sup>th</sup>
June 1 <sup>st</sup>	June 29 <sup>th</sup>
July 6 <sup>th</sup>	July 27 <sup>th</sup>
August 3 <sup>rd</sup>	August 31 <sup>st</sup>
September 7 <sup>th</sup>	September 28 <sup>th</sup>
October 5 <sup>th</sup>	October 26 <sup>th</sup>
November 2 <sup>nd</sup>	November 18 <sup>th</sup>
No training events offered in December.	

**Please note:**

\*All webinar sessions will be held at **1:30pm EST**, unless otherwise noted. Elation reserves the right to change the Training Dates. Attendees will be notified of any change(s) in advance.

For additional information, contact Elation Systems – [support@elationsystems.com](mailto:support@elationsystems.com)