PROJECT MANUAL

BUFFALO CONVENTION CENTER BALLROOM RENOVATIONS

Buffalo Convention Center

1 Convention Center Plaza
Buffalo, NY 14202
DATE: May 1, 2024

PROJECT #: 2022-818-02
BID DATE: May 22, 2024

MARK C. POLONCARZ
COUNTY EXECUTIVE

DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

WILLIAM E. GEARY
COMMISSIONER OF PUBLIC WORKS

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

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COUNTY OF ERIE
NOTICE TO BIDDERS
Buffalo Convention Center Interior Renovations
ECDPW PROJECT NO. 2022-818-02

Separate Sealed bids for General Construction, Plumbing/Fire Protection, and Electrical work at the above County facility will be received by the County's Commissioner of Public Works in Suite 1400 of the Rath County Office Building, 95 Franklin Street, Buffalo, New York 14202 until 10:30 AM local time on May 22, 2024; at which time they will be opened and read aloud.

The bidding documents, specifications, and drawings may be downloaded from the Erie.gov website http://www.erie.gov/dpw/, ON-LINE BID RETRIEVAL, or examined at the following offices:

Erie County Department of Public Works
Office of the Commissioner
Rath County Office Building
95 Franklin Street, Suite 1400
Buffalo, NY 14202

Construction Exchange of Buffalo & WNY
2660 William Street
Cheektowaga, NY 14227
http://www.conexbuff.com/

Bids will not be accepted unless the bid package is downloaded directly from www.erie.gov/dpw so that contact information is captured by ECDPW for bid addenda and communication.

A mandatory Pre-Bid Conference/Site visit will be held at 10:00 am on May 7, 2024. Contractors are to convene at the Buffalo Convention Center, 1 Convention Center Plaza at the Franklin Street entrance to review the scope of the project and respond to questions from the bidders.

Each proposal must be accompanied by a Bid Bond of five percent (5%) of the amount of the bid payable unconditionally to the County of Erie.

The Contractor's attention is drawn to the provisions in the General Conditions establishing a Minority/Women Business Utilization requirement for this project. Contractors are advised that by submitting a signed and sealed bid proposal they are agreeing and committing to the WBE/MBE requirements contained in this project.

The Contractor's attention is further drawn to requirements for Contractor's participation in a New York State Certified Apprenticeship Training Program. **In addition, the Contractor shall be advised that provisions set forth by Erie County Executive Order #18 ("EO #18") may apply.**

Attention of bidders is called to the fact that if a prospective bidder is not registered as a bidder with the Office of the Commissioner of Public Works by virtue of his/her downloading of the bidding documents, then notices of contract addenda or other significant matters related to the contract proposal or bid will not be communicated to said prospective bidder.

The County of Erie reserves the right to reject any or all bids and waive any informality.

WILLIAM E. GEARY
Commissioner of Public Works
Rath County Office Building
95 Franklin Street, Suite 1400
Buffalo, NY 14202

DATED: May 1, 2024

Rev 11/2022

INFORMATION FOR BIDDERS

1. THE PROJECT CONSISTS OF:

A. General Construction Work, including but not limited to, replacement of floor finishes, selective replacement of wall finishes and/or patching and painting, refinishing wood doors, and removal and replacement of ceiling systems within the lower level ballroom. Work also includes limited replacement of HVAC diffusers and grilles associated with ceilings to be connected to existing ductwork.

B. Electrical Construction Work, including but not limited to, general wiring and replacement of existing switches, panels, feeders, receptacles, light fixtures, fire alarm devices and audio systems within the lower level ballroom.

C. Plumbing/Fire Protection Construction Work, including but not limited to, modification of branch piping for sprinkler systems and replacement of sprinkler heads in coordination with replacement of ceiling systems and lighting within the lower level ballroom.

2. RECEIPT AND OPENING OF PROPOSALS

A. Sealed bids for the project (separately submitted based on the above type of construction work) will be received by the Department of Public Works, Office of the Commissioner, 14th Floor, Rath County Office Building, 95 Franklin Street, Buffalo NY 14202 until 10:30 AM local time on Wednesday, May 22, 2024, at which time they will be publicly opened and read aloud.

3. ARCHITECT/ENGINEER

A. For the purpose of this contract, the Architect as defined in the General Conditions, shall be: Architectural Resources, DPC.

B. Direct all inquiries concerning these documents to:

Name: James Maurer, AIA

Address: 505 Franklin Street, Buffalo, NY 14202

Phone: (716) 883-5566

Fax: (716) 883-5569

E-Mail: jmaurer@archres.com

4. SITE VISITATION / PRE-BID CONFERENCE

A. A mandatory Pre-Bid Conference will be held at 10:00 AM on May 7, 2024 at the Buffalo Convention Center to review the scope of the project and respond to any questions from bidders.

B. Prospective Bidders shall assemble promptly on the date indicated at the Buffalo Convention Center, Franklin Street Entrance.

5. PREPARATION OF PROPOSALS

A. Submit proposal on the enclosed form. Enclose in sealed envelope bearing the title of the work and the name of the Bidder. Bidders shall submit all of the following to be considered :

1) Proposal Form, included herein, inclusive of the following:

1) Base Bid Price

2) Completion Time

3) Alternate Pricing

4) Substitutions (if applicable)

5) Acknowledgement of all Addenda

6) Non-Collusive Bidding Certificate

7) Company information with Owner Signature

8) Apprenticeship Certification (if applicable; see the proposal form and Section 10 of the General Conditions for more information)

9) Contractors Own Workforce – See Section 3.18 of the General Conditions for more information

10) Equal Pay Certification - See Sections 8.04 and 8.07 of the General Conditions for more information

11) Erie County Executive Order #18 Attestation and Statement of Workforce (if applicable; See the proposal form and Section 8.08 of the General Conditions for more information)

12) Drug and Alcohol Testing Compliance Form

2) Experience Questionnaire conforming to the New York Vendor Responsibility Questionnaire For-Profit Construction (Form CCA-2) as included within the project manual.

1) **NOTE** – Failure to submit the competed Responsibility Questionnaire referenced above with the sealed bid proposal shall render the bid non-responsive and the bid shall not be considered in accordance with Erie County Local Law 2-2021.

a) See Appendix D for the fill version of Local Law 2-2021.

2) Form CCA-2 is to be provided with the sealed bid proposal in its entirety, inclusive of Attachments A and B.

a) **Attachment C titled 'FINANCIAL INFORMATION' will only be required to be provided by the awarded contractor, prior to final contract execution, at the request of the County.** Failure to project Attachment C at the request of the County may result in termination or cancelled execution of the contract associated with a given Project.

3) If the contractor is already enrolled in the New York State's VendRep system, the contractor is permitted to print out their packet from the State's system, in its entirety inclusive of Attachments A and B, to provide within their respective sealed bid proposal submission.

4) All documents related to the CCA-2 Questionnaire can be found in the front end of the project manual and can also be found at the link below

https://www.osc.state.ny.us/state-vendors/vendrep/profit-construction-questionnaire-cca-2

3) Erie County Minority/Women Business Enterprise & Service-Disabled Veteran Owned Business Utilization Report – Part A included herein (if applicable; See the proposal form and Section 8.06 of the General Conditions for more information).

4) Bid Bond in an amount not less than five percent (5%) of the base bid.

B. In case of a difference between the stipulated amount of the proposal written in words and the stipulated amount written in figures, the stipulated amount stated in written words shall govern.

C. Proposals shall not contain any recapitulations of the work to be done. Alternate proposals will not be considered unless called for. Oral proposals or modifications will not be considered.

D. Any Bidder may withdraw their proposal, either personally or by fax or written request, at any time prior to the scheduled closing time for receipt of proposals.

E. All proposal forms submitted by a bidder requiring a bidder's signature must bear an original signature signed in ink. Proposals submitted without original signatures will be rejected.

6. AWARD OR REJECTION

A. The Contract for each phase of the work will be awarded to the lowest qualified responsible Bidder. The Owner reserves the right to reject any or all proposals or to waive any informality. All proposals shall be good for 90 days from date of opening.

1) For the purposes of bidding and planning when the work can begin, the Notice To Proceed can expect to be issued within 90 days of the bid opening and therefore all work specified within a given contract shall be planned accordingly by the lowest responsible bidder to commence without delay or extra compensation from the County within that timeframe. Once the Notice To Proceed is issued, the contractor is responsible for completing the work within the specified completion time on the bid proposal by the contractor, unless otherwise approved by the County.

B. For the purpose of determining the lowest responsible bidder, the County shall compare all base bids plus any add or any deduct Alternate Bid items. Unit prices set forth in the proposal shall not be considered in determining the lowest responsible bidder.

C. The County reserves the right to accept or reject any and all Alternate Bid Items in any order. The low-bidder will be determined based on the base scope of work and the alternates selected by the Owner, if applicable.

D. The County reserves the right to deem a contractor "Non-responsible" in accordance with Erie County Local Law No. 2-2021

7. INTERPRETATION OF DOCUMENTS

A. If any person contemplating submitting a proposal is in doubt as to the true meaning of any part of the Drawings, Specifications or other Contract Documents, or finds discrepancies in or omissions from the Drawings or Specifications, he may submit to the Architect - Engineer a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the documents will be made only by Addendum duly issued and a copy of the Addendum will be forwarded to each person receiving a set of the Contract Documents. Neither the Owner nor the Architect - Engineer will be responsible for any other explanations or interpretations of the Contract Documents.

8. ADDENDA

A. Any Addenda issued during the time of bidding shall be covered in the proposal, and shall be made a part of the Contract Documents. Receipt of each Addendum shall be acknowledged in the proposal.

B. A final addendum will be issued no later than Thursday, May 16, 2024. Requests for interpretation or correction (RFI) shall be submitted to the Architect no later than 5:00 PM on Monday, May 13, 2024.

9. BID BOND

A. Each proposal must be accompanied by a Bid Bond in form similar to American Institute of Architects Document No. A-310 in an amount not less than five percent (5%) of the base bid.

B. Should the Bidder, if awarded the Contract, fail to execute the Agreement within five (5) days in accordance with the proposal and other Contract Documents the Bid Bond amount shall be forfeited to the Owner as liquidated damages caused by such failures.

10. PERFORMANCE AND LABOR AND MATERIAL PAYMENT BOND

A. The bidder or bidders whose proposal is accepted shall furnish a Performance and Labor and Materials Payment Bond to the County of Erie in the penal amount of 100% of the contract price, if the contract is based upon a time and material price, or 100% of the estimated cost if the contract is based upon a unit price, such bond to be duly executed by the bidder as principal and by a duly incorporated company authorized to guarantee the performance of contracts and to do business in the State of New York, as surety. The Bond shall be on a form approved by the County Attorney, a copy of which is included herein.

11. QUALIFICATIONS OF BIDDERS

A. The Bidder shall submit all documents as described in Section 5 above.

B. All prospective bidders are hereby notified that they must be able to prove to the satisfaction of the Owner that they are a responsible bidder and have the skill and experience, as well as the necessary facilities, ample financial resources, organization and general reliability to do the work to be performed under the provisions of the contract in a satisfactory manner and within the time specified.

C. At the request of the Owner, within forty-eight hours (48) after the opening of the proposals, the lowest three bidders, if requested, must submit, in duplicate, to the Owner a current financial statement certified to be true and correct by a certified public accountant or an officer or principal of the bidder.

D. Each bidder must be prepared to show to the satisfaction of the Owner that he has sufficient liquid assets available for the project upon which he is bidding. The Owner does not regard credit, borrowed money, equity in real estate, life insurance, reserves representing pre-payment of taxes and life insurance, and other expenses, deposits held as security for other contracts, capital of proposed sub-contractors, capital stock of the contractor, and similar items, as liquid assets available for the work to be performed under the contract.

E. A bidder must also be prepared to prove to the satisfaction of the Owner that he has successfully completed a contract of similar work in an amount of not less than 25 percent of the amount of the proposed contract.

F. Each bidder must comply promptly with all requests by the Owner for information and must actively cooperate with the Owner in its efforts to determine whether the bidder is qualified.

G. The award of the contract shall not be construed as a guarantee by the Owner that the plant, equipment and the general scheme of operations and other data submitted by the bidder with or after their proposal is either adequate or suitable for the satisfactory performance of the work.

12. ACKNOWLEDGEMENTS

A. All acknowledgements of Contractor and Owner, Principal and Surety shall be subject to the approval of the Erie County Attorney, State of New York.

13. EQUIVALENT MATERIAL OR EQUIPMENT

A. Whenever a specific material or equipment item is named in the plans or specifications, the Contractor shall furnish the material or equipment thus named, unless: (1) in the Bid, the contractor names another item which he proposes as the full equivalent of the named item, and in executing the Contract the Owner accepts such substitution; or (2) the Owner subsequently approves a substitution during the course of project construction by Change Order.

14. LIST OF PROPOSED SUBCONTRACTORS

A. The low bidder, or three low bidders if requested, shall submit a complete list of sub-contractors he proposes to use not later than 48 hours after receipt of bid proposals.

B. Sub-contractor list shall be delivered to the Architect with a copy for the Owner.

C. Execution of the Contract by the Owner without objection to any name on said list shall constitute an acceptance of the same. Should the Owner request that a different sub-contractor be proposed for any phase of the work, the bidder shall comply with such requests until a sub-contractor acceptable to the Owner is proposed. No sub-contractor approved by the Owner may be replaced unless replacement is approved by the Owner.

15. NON-COLLUSIVE BIDDING CERTIFICATE

A. Attention of all bidders is called to provisions of State Law requiring the bid itself to contain a certificate that there has been no collusion in the preparation or submittal of such bid. (See pertinent portion of Proposal Form.)

16. SALES TAX EXEMPTION

A. The Owner is an exempt organization under the Tax Law and is exempt from payment of Sales and Compensating Use Taxes of the State of New York and cities and counties of the State on all materials sold to the Owner pursuant to the provisions of the Contract. These taxes are not to be included in bids.

1. Section 115 (a) (15) of the Tax Law provides that tangible personal property sold to a Contractor for use in erecting a structure or building for an exempt organization is exempt from the Sales and Compensating Use Tax of the State of New York and of cities and counties of the State provided such tangible personal property is to become an integral component part of such structure, building, or real property.

2. There is no exemption from the Sales or Use Tax on sales or charges to a Contractor or sub-contractor for the purchase or lease of supplies, machinery, equipment, tools, services, etc., used or consumed in the completion of the Contract. The Contractor and its sub-contractors shall be responsible for and pay any and all applicable taxes including Sales and Compensating Use Taxes on such items.

17. BIDDING DOCUMENTS

A. Drawings, Specifications and other Bidding Documents must be downloaded from the Erie.gov website http://www.erie.gov/dpw/, 'Bids, RFPs, RFQs' then select 'Bid Documents', unless stated otherwise in the Notice to Bidders. Electronic pdf files of the Bid Documents will be available for each Prime Contract Bidder for purposes of preparing a bona fide Proposal.

18. EXISTING CONDITIONS

A. It shall be the responsibility of each and every bidder to thoroughly investigate all existing conditions and he shall acquaint themselves with existing conditions, insofar as it may affect their work and/or bidding.

B. The Bidder, before submitting a proposal, shall satisfy themselves fully as to the work called for on the Contract Documents, and to the working conditions and condition of the site, including the existence of other facilities and/or structures on, over or under the site which may interfere with, or make more difficult, the performance of the Contract.

C. The signature of the Bidder upon the proposal form shall constitute a certification to the Owner that such Bidder is fully informed regarding all the conditions affecting the work to be done, that such information was secured by personal investigation and that such Bidder accepts full responsibility for their bid.

D. If a Bidder should encounter any condition not provided for in the Contract Documents that will affect their bid or the performance of their contract obligations, should he be the successful bidder, he shall notify the Architect, in writing, at least five (5) days prior to opening of bids.

19. WAGE RATES

A. It is hereby agreed by the parties to this contract that all laborers, workmen and mechanics employed on the work done in performance of said contract shall be paid not less than the rate of wages listed on the current prevailing rate schedule issued by the New York State Department of Labor for the trade or occupation of such laborer, workmen, or mechanics, and any supplements thereto.

B. The wage rates and supplemental benefits to be paid such laborer, workmen or mechanics shall always be those prevailing at the time the work is being performed.

C. A copy of the current "Prevailing Rate Schedule" is attached hereto for convenience. The wage rates and supplemental benefits listed thereon are subject to change and may be superseded by any schedule hereafter issued by the New York State Department of Labor. Any such revised schedules shall be attached hereto and become a part of this contract, but this will in no way alter the contract amount or any provisions of said contract.

D. It is the responsibility of the Contractor to remain familiar with the currently applicable schedule.

E. Should the Contractor employ laborers, workmen or mechanics engaged in any trade for which a wage rate is not stipulated in the attached schedule, or any supplements thereto, he shall obtain the appropriate wage rate from the New York State Department of Labor before employing the laborer, workman or mechanic.

F. Section 220-a of the New York State Labor Law requires the Contractor and each of its sub-contractors to place on file with the Owner, certificates relating to the final payment of wages and supplements for Labors on this Project. Samples of the required certificates immediately follow this section and are designated as PICC-1 (Sub-contractor Certification) and PICC-2 (Prime Contractor Certification, pages 1 & 2). The Contractor and each of its sub-contractors acknowledge that no final payment can be made to the Contractor unless the necessary certifications, properly executed, accompany the final payment request.

G. If a Contractor or sub-contractor has had one final determination by the New York State Department of Labor that it willfully failed to pay or provide the prevailing rate of wages or supplements to its employees, the contractor or sub-contractor will be ineligible to tender a bid.

20. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

A. It is the contractor responsibility to submit proof of OSHA 10 certification for all employees performing work on a job site associated with the Project. OSHA 10 certification can be submitted through the LCPtracker software system.

21. DRUG & ALCOHOL TESTING PROGRAM COMPLIANCE

A. Due to the safety-sensitive nature of the work that Commercial Driver Licensed (CDL) employees may perform on this project, the low bidder, if requested, shall submit acknowledgment of Drug and Alcohol Testing Compliance Form DA-1 included herein within three (3) days after receipt of proposals.

END OF SECTION (see attachment)

ATTACHEMENT

1. Erie County Local Law 2-2021 – MWBE Goals
2. Erie County Local Law 3-2023 – SDVOB Goals

Local Law Filing

(Use this form to file a local law with the Secretary of State.)

Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underlining to indicate new matter.

☑ **County** ☐ **City** ☐ **Town** ☐ **Village**
(Select one:)
of Erie

Local Law No. 2 **of the year 20**21

A local law updating and reforming Erie County's Requirements for
(Insert Title)
Lowest Responsible Bidding on County Construction Projects and
Repealing and Replacing Local Law 1-2009 in its entirety.

Be it enacted by the Erie County Legislature **of the**
(Name of Legislative Body)

☑ **County** ☐ **City** ☐ **Town** ☐ **Village**
(Select one:)
of Erie **as follows:**

Section 1. Legislative Intent.

The Erie County Legislature hereby finds, declares and determines that:

A. New York General Municipal Law Section 103 requires that all contracts entered into by the County of Erie for public work involving an expenditure of more than thirty-five thousand dollars ($35,000) shall be awarded to the lowest responsible bidder.

B. Taxpayers have a strong interest in an effective screening process to ensure that appropriate contractors be awarded public works contracts. A thorough evaluation process ensures that the taxpayers get a proper return on their investment and that qualified contractors are awarded bids.

(If additional space is needed, attach pages the same size as this sheet, and number each.)

C. General Municipal Law § 103(15)(a) recognizes the need for this process and provides that municipalities, such as the County of Erie, may establish guidelines governing the qualifications of bidders seeking to bid or enter into such contracts.

D. By enacting this Local Law, the County of Erie seeks to establish such guidelines in order to assure the prudent and economical use of public moneys for the benefit of all the inhabitants of the County.

Section 2. Short Title.

This Local Law shall be known as "the Erie County Lowest Responsible Bidder Law".

Section 3. Applicability.

This Local Law shall apply to County of Erie construction projects, defined herein, in excess of $35,000 and advertised for bids on or after the effective date of this Local Law.

Section 4. Definitions.

A. "The County of Erie" or "County" as used herein shall include the political subdivision known as the County of Erie as well as those County Departments responsible for letting public works contracts.

B. "Bidder" or "bidders" as used herein shall include individuals, companies, partnerships or other entities that respond to requests for bids issued by the County of Erie.

C. "Construction Projects" as used herein shall mean projects with a value in excess of $35,000 where the County of Erie is a direct or indirect party to the contract which includes more than an incidental amount of construction type activity intended to benefit the public, including all work which is necessary, incidental or connected with the execution of the contract which is performed by construction workers. A public entity need not be party to the construction contract. A construction contract includes: projects that the County of Erie funds directly, projects that the County of Erie funds indirectly by providing funds to a separate entity to perform the construction type activity; privately financed construction projects specifically built with the intent of leasing them to any Department of the County of Erie government; and construction projects built under the County of Erie's direction and later paid for with County of Erie funds.

D. "Commissioner" as used herein shall mean the Commissioner of the County of Erie Department that is requesting bids and/or his or her designee.

E. "Responsible" or "responsibility" as used herein means the financial ability, legal capacity, integrity, past performance of a business entity and compliance with applicable laws and regulations and as such terms have been interpreted relative to public procurements.

F. "Responsive" as used herein means a bidder meeting the minimum specifications or requirements as prescribed in the request for bids.

G. "Responsibility Questionnaire" shall mean the current the New York Vendor Responsibility Questionnaire For-Profit Construction (CCA-2), as maintained by the New York Office of the State Comptroller, and as may be amended from time to time, which requires all bidders to answer questions demonstrating their financial ability, legal capacity, integrity, past performance on municipal contracts and compliance with applicable laws and regulations. Such Questionnaire shall be affirmed by a principal of the bidder.

Section 5. Requirements.

A. By submitting bids in response to solicitations from the County of Erie, all bidders and sub-bidders (including sub-sub bidders) for construction projects funded by the County of Erie, acknowledge the terms and conditions of this Local Law and agree that they shall comply with the obligations of this Local Law.

B. In addition to the bid response, all bidders shall complete and submit a Responsibility Questionnaire as defined in Section 4 so that the County can evaluate the financial responsibility and organizational capacity of the bidder; the bidder's legal authority to do business in this County and State; the integrity of the owners, officers, principals, members and contract managers and the past performance of the bidder on prior municipal or public contracts. The completed Responsibility Questionnaire must be submitted with the bid.

C. Failure to submit the completed Responsibility Questionnaire with the bid documents shall render the bid non-responsive and the bid shall not be considered by the Commissioner.

Section 6. Procedure.

A. Bids for construction projects to which this Local Law applies shall be advertised in accordance with the requirements of the General Municipal Law and other applicable State and Local Laws. Such advertisement shall set forth the request for bids and shall set forth the deadline for submission and the time and place of the public opening of the bids.

B. The Commissioner, or his or her designee, shall distribute to all bidders a copy of this Local Law and the Responsibility Questionnaire referenced above. Distribution of the aforementioned documents shall be deemed effectuated when delivered in the same manner as the request for bids and any associated documents. The submission of a bid shall establish that the bidder received all necessary documents, including but not limited to, the Responsibility Questionnaire.

C. Only Bids accompanied by the Responsibility Questionnaire and all other necessary documentation will be considered by the Commissioner and or his or her designee.

D. All bids received shall be publicly opened and read at the time and place so specified in the advertisement for bids and the identity of all bidders shall be publicly disclosed at the time and place so specified. The apparent lowest bidder shall be announced at that time.

E. Commencing on the date of the bid opening and lasting for ten (10) calendar days thereafter, there shall be a public comment period during which members of the public may submit information relative to any such bidder to the Commissioner. The Commissioner shall acknowledge receipt of such information, and provide a written response prior to the final determination of bidder responsibility.

F. After review of the bid documents, the information collected pursuant to this and other Local Laws, New York State Law, applicable rules and regulations, consideration of the information provided in the Responsibility Questionnaire and of the financial ability, legal capacity, integrity, past performance of the bidder and compliance with applicable laws and regulations, the Commissioner shall determine if the apparent lowest bidder is responsible.

H. If the amount of the lowest responsible bidder appears disproportionately low when compared with estimates undertaken by or on behalf of the County of Erie, and/or compared to other bids submitted (10% or greater disparity), the County reserves the right to inquire further of the apparent lowest bidder to determine whether the bid contains mathematical errors, omissions and/or erroneous assumptions, and whether the apparent lowest bidder has the capability to perform and complete the contract for the bid amount.

I. If the apparent lowest bidder is deemed responsible by the Commissioner, such low bidder will be notified, as soon as is practicable.

J. At least five (5) business days prior to the award of the contract to the low bidder, the Commissioner shall post on the Erie County Website a listing of the three apparent lowest bidders for the work.

Section 7. Non-Responsibility Determination.

A. If, after review of the bid documents, the information collected pursuant to this and other Local Laws, New York State Law, applicable rules and regulations, consideration of the information provided in the Responsibility Questionnaire and of the financial ability, legal capacity, integrity, past performance of the bidder and compliance with applicable laws and regulations, the Commissioner makes a provisional determination that the apparent lowest bidder is deemed not to be responsible, the provisions of subdivisions C-E herein shall apply.

B. In the event the bidder is found to have falsified information on a submitted Responsibility Questionnaire or if the bidder fails to properly disclose information that would call into question the financial ability, legal capacity, integrity, or past performance of the business entity, the Commissioner shall make a provisional determination that the bidder is not responsible subject to the provisions of subdivisions C-E herein.

C. Not less than five (5) business days prior to any final determination that the apparent lowest bidder is not responsible, the County shall notify the affected bidder of the same, in writing, stating the reasons therefore and setting forth a time, date and place for the apparent lowest bidder to appear and be heard on the issue of non-responsibility. Mailing via first class mail to the address provided by bidder shall constitute sufficient service of the notice.

D. At the date, time and place set forth above, the bidder may appear in person, with or without counsel or via affidavit. After due consideration, the Commissioner shall make a determination with regard to responsibility. Such determination may be appealed pursuant to the CPLR.

E. If the apparent lowest bidder is deemed not to be responsible, then the next lowest bidder will be reviewed and so on until the lowest bidder is deemed responsible and selected as the lowest responsible bidder. The Commissioner reserves the right to award the contract to the bidder determined to be the lowest responsible bidder or to reject all bids and rebid the contract in accordance with the General Municipal Law.

Section 8. Ongoing Responsibility.

A. The Contractor shall at all times during the Contract term remain responsible. The Contractor agrees, if requested by the Commissioner or his or her designee, 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.

B. Any resident of Erie County who has reason to believe that an awarded contractor is not responsible, may submit to the Commissioner evidence as to why the contractor or subcontractor is not responsible. The Commissioner shall acknowledge receipt of such evidence, and provide a written response within fifteen (15) calendar days.

C. The Commissioner may, upon receipt of such information, conduct a further investigation into whether or not the contractor is responsible and prior to making any determination of non-responsibility shall proceed in accordance with the process set forth in Section 7 above.

Section 9. Sanctions.

A. Any contractor or subcontractor, its alter ego or control group, or principal officer who has, after the opportunity to be heard as set forth above, been determined by the Commissioner to be non-responsible, shall be barred from bidding on contracts for the County of Erie for a period of six months for the first violation. In the event the bidder subsequently fails to comply with the provisions of this Local Law on future bids, it may be subject to additional penalties, including prohibition against work on County contracts for three years for the second violation, and permanently for the third violation.

Section 10. Emergency.

A. Notwithstanding the provisions of this Local Law, in the case of a public emergency arising out of an accident or any other unforeseen occurrence or condition whereby circumstances affecting public buildings, public property or the life, health, safety or property of the inhabitants of the County of Erie, which requires immediate action which cannot await competitive bidding or competitive offering, contracts for public work may be let by the appropriate officer, board or agency of the County of Erie without competitive bidding and as it otherwise deems appropriate.

Section 11. Severability.

If any clause, sentence, paragraph, subdivision, section or part of this Local Law or the application thereof, to any person, individual, corporation, firm, partnership, entity or circumstance, shall be adjudged by any court of competent jurisdiction to be invalid or unconstitutional such order of judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, subdivision, section or part of this Local Law or in its application to the person, individual, corporation, firm, partnership, entity, or circumstance directly involved in the controversy in which such judgment or order shall be rendered.

Section 12. Effective Date.

This Local Law shall take effect 30 days after the filing with the Secretary of State, in accordance with Section 27 of the New York State Municipal Home Rule Law.

Sponsors:

Timothy Meyers
April N.M. Baskin
Howard Johnson

(Complete the certification in the paragraph that applies to the filing of this local law and strike out that which is not applicable.)

1. (Final adoption by local legislative body only.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, in accordance with the applicable *(Name of Legislative Body)* provisions of law.

2. (Passage by local legislative body with approval, no disapproval or repassage after disapproval by the Elective Chief Executive Officer*.)

I hereby certify that the local law annexed hereto, designated as local law No. 2 of 20 21 of the (County) [redacted] of Erie was duly passed by the Erie County Legislature on February 4 2021, and was (approved)(~~not approved~~) *(Name of Legislative Body)*

(~~repassed after disapproval~~) by the Erie County Executive and was deemed duly adopted *(Elective Chief Executive Officer*)*

on March 1 20 2 1, in accordance w ith the applicable provisions of law.

3. (Final adoption by referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, and was (approved)(not approved) *(Name of Legislative Body)*

(repassed after disapproval) by the _____ on _____ 20____. *(Elective Chief Executive Officer*)*

Such local law was submitted to the people by reason of a (mandatory)(permissive) referendum, and received the affirmative vote of a majority of the qualified electors voting thereon at the (general)(special)(annual) election held on _____ 20____, in accordance with the applicable provisions of law.

4. (Subject to permissive referendum and final adoption because no valid petition was filed requesting referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, and was (approved)(not approved) *(Name of Legislative Body)*

(repassed after disapproval) by the _____ on _____ 20____. Such local *(Elective Chief Executive Officer*)*

law was subject to permissive referendum and no valid petition requesting such referendum was filed as of _____ 20____, in accordance with the applicable provisions of law.

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* Elective Chief Executive Officer means or includes the chief executive officer of a county elected on a county-wide basis or, if there be none, the chairperson of the county legislative body, the mayor of a city or village, or the supervisor of a town where such officer is vested with the power to approve or veto local laws or ordinances.

5. (City local law concerning Charter revision proposed by petition.)
I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the City of _____ having been submitted to referendum pursuant to the provisions of section (36)(37) of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of such city voting thereon at the (special)(general) election held on _____ 20____, became operative.

6. (County local law concerning adoption of Charter.)
I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the County of _____State of New York, having been submitted to the electors at the General Election of November _____ 20____, pursuant to subdivisions 5 and 7 of section 33 of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of the cities of said county as a unit and a majority of the qualified electors of the towns of said county considered as a unit voting at said general election, became operative.

(If any other authorized form of final adoption has been followed, please provide an appropriate certification.)
I further certify that I have compared the preceding local law with the original on file in this office and that the same is a correct transcript therefrom and of the whole of such original local law, and was finally adopted in the manner indicated in paragraph 2 above.

_____
Clerk of the county legislative body, City, Town or Village Clerk or officer designated by local legislative body

(Seal)

Date: March 2, 2021

A Public Hearing was held on the foregoing **Local Law Intro. No. 7-1-2020** on **February 23, 2021** due notice thereof having been published in the official newspapers of the County of Erie designated for this purpose, and after due deliberation thereon, I, MARK C. POLONCARZ, County Executive of Erie County, do hereby APPROVE and SIGN said Local Law this 1 day of March, 2021.

Mark C. Poloncarz

A Public Hearing was held on the foregoing Local Law Intro. **No. 7-1-2020** on **February 23, 2021** due notice thereof having been published in the official newspapers of the County of Erie designated for this purpose, and after due deliberation thereon, I, MARK C. POLONCARZ, County Executive of Erie County, do hereby DISAPPROVE and VETO said Local Law this ____ day of _____, 2021.

_____
Mark C. Poloncarz

New York State Department of State
Division of Corporations, State Records and Uniform Commercial Code
One Commerce Plaza, 99 Washington Avenue
Albany, NY 12231-0001
www.dos.ny.gov

Local Law Filing

(Use this form to file a local law with the Secretary of State.)

Text of law should be given as amended. Do not include matter being eliminated and do not use italics or underlining to indicate new matter.

☑ **County** ☐ **City** ☐ **Town** ☐ **Village**
(Select one:)

of Erie

Local Law No. 3 **of the year 20** 23

A local law *(Insert Title)* in relation to ensuring that service-disabled veterans have greater participation in Erie County contracts.

Be it enacted by the Erie County Legislature **of the**
(Name of Legislative Body)

☑ **County** ☐ **City** ☐ **Town** ☐ **Village**
(Select one:)

of Erie **as follows:**

SECTION 1. LEGISLATIVE INTENT

Erie County is home to many men and women who have faithfully served their country as members of military and national guard, some of whom became disabled during their service. It is the intent of the Erie County Legislature to honor this service and sacrifice for our nation by promoting and encouraging the continued economic development of service-disabled veteran-owned businesses by ensuring greater participation in County contracts.

(If additional space is needed, attach pages the same size as this sheet, and number each.)

SECTION 2. DEFINITIONS

The following terms shall have the meanings indicated:

1. "State-Certified Business" shall mean a business that is a certified service-disabled veteran-owned business under the New York State Service-Disabled Veteran-Owned Business Act.

2. "Departments and Offices" shall mean

   a) Any County department; or

   b) Any division, office or bureau of any County department, or Erie County Community College; or

   c) A board, a majority of whose members are appointed by the County Executive or who serve by virtue of being County officers or employees.

SECTION 3. OUTREACH

The Erie County Office of Equal Employment Opportunity (the "EEO") shall be responsible for outreach to State Certified Businesses in order to encourage participation in public contract bidding opportunities.
The EEO shall maintain a data base of all State-Certified Businesses.

SECTION 4. PARTICIPATION

All Departments and Offices of Erie County shall make good faith efforts to ensure State-Certified Businesses have greater participation in County contracts by aiming for at least a six percent participation rate of State-Certified Businesses on County contracts.

SECTION 5. RECORDS

All Departments and Offices of Erie County shall maintain documents reflecting the good faith efforts made by their Department.

SECTION 6. SEVERABILITY

If any clause, sentence, paragraph, subdivision, section or part of the Local Law or the application thereof, to any person, individual, corporation, firm, partnership, entity or circumstance, shall be adjudged by any court of competent jurisdiction to be invalid or unconstitutional such order of judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, subdivision, section or part of this Local Law or in its application to the

person, individual, corporation, firm, partnership, entity, or circumstance directly involved in the controversy in which such judgment or order shall be rendered.

SECTION 4. EFFECTIVE DATE

This Local Law shall take effect upon filing with the New York Secretary of State.

Sponsors:
John Gilmour

(Complete the certification in the paragraph that applies to the filing of this local law and strike out that which is not applicable.)

1. (Final adoption by local legislative body only.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, in accordance with the applicable *(Name of Legislative Body)*
provisions of law.

2. (Passage by local legislative body with approval, no disapproval or repassage after disapproval by the Elective Chief Executive Officer*.)

I hereby certify that the local law annexed hereto, designated as local law No. of 20 23 of the (County)(~~City~~)(~~Town~~)(~~Village~~) of Erie was duly passed by the Erie County Legislature on June 8 20 23, and was (approved)(~~not approved~~) *(Name of Legislative Body)*
(~~repassed after disapproval~~) by the Erie County Executive and was deemed duly adopted *(Elective Chief Executive Officer*)*
on June 26 20 2 3, in accordance w ith the applicable provisions of law.

3. (Final adoption by referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, and was (approved)(not approved) *(Name of Legislative Body)*
(repassed after disapproval) by the _____ on _____ 20____. *(Elective Chief Executive Officer*)*

Such local law was submitted to the people by reason of a (mandatory)(permissive) referendum, and received the affirmative vote of a majority of the qualified electors voting thereon at the (general)(special)(annual) election held on _____ 20____, in accordance with the applicable provisions of law.

4. (Subject to permissive referendum and final adoption because no valid petition was filed requesting referendum.)

I hereby certify that the local law annexed hereto, designated as local law No. _____ of 20____ of the (County)(City)(Town)(Village) of _____ was duly passed by the _____ on _____ 20____, and was (approved)(not approved) *(Name of Legislative Body)*
(repassed after disapproval) by the _____ on _____ 20____. Such local *(Elective Chief Executive Officer*)*
law was subject to permissive referendum and no valid petition requesting such referendum was filed as of _____ 20____, in accordance with the applicable provisions of law.

* Elective Chief Executive Officer means or includes the chief executive officer of a county elected on a county-wide basis or, if there be none, the chairperson of the county legislative body, the mayor of a city or village, or the supervisor of a town where such officer is vested with the power to approve or veto local laws or ordinances.

5. (City local law concerning Charter revision proposed by petition.)
I hereby certify that the local law annexed hereto, designated as local law No._____ of 20____ of the City of _____ having been submitted to referendum pursuant to the provisions of section (36)(37) of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of such city voting thereon at the (special)(general) election held on _____ 20____ , became operative.

6. (County local law concerning adoption of Charter.)
I hereby certify that the local law annexed hereto, designated as local law No._____ of 20____ of the County of _____State of New York, having been submitted to the electors at the General Election of November _____ 20____, pursuant to subdivisions 5 and 7 of section 33 of the Municipal Home Rule Law, and having received the affirmative vote of a majority of the qualified electors of the cities of said county as a unit and a majority of the qualified electors of the towns of said county considered as a unit voting at said general election, became operative.

(If any other authorized form of final adoption has been followed, please provide an appropriate certification.)
I further certify that I have compared the preceding local law with the original on file in this office and that the same is a correct transcript therefrom and of the whole of such original local law, and was finally adopted in the manner indicated in paragraph 2 above.

_____
Clerk of the county legislative body, City, Town or Village Clerk or officer designated by local legislative body

(Seal)

Date: _____

A Public Hearing was held on the foregoing **Local Law Intro. No. 5-1-2023** on May 31, **2023** due notice thereof having been published in the official newspapers of the County of Erie designated for this purpose, and after due deliberation thereon, I, MARK C. POLONCARZ, County Executive of Erie County, do hereby APPROVE and SIGN said Local Law this 26 day of **June, 2023**.

Mark C. Poloncarz

A Public Hearing was held on the foregoing **Local Law Intro. No. 5-1-2023** on _____, **2023** due notice thereof having been published in the official newspapers of the County of Erie designated for this purpose, and after due deliberation thereon, I, MARK C. POLONCARZ, County Executive of Erie County, do hereby DISAPPROVE and VETO said Local Law this ____ day of **June, 2023.**

Mark C. Poloncarz

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Erie County

James Maurer
505 Franklin Street
Buffalo NY 14202

Schedule Year 2023 through 2024
Date Requested 04/25/2024
PRC# 2024004867

Location Buffalo
Project ID# 2022-818-02
Project Type Interior renovations to lower level ballroom.

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2023 through June 2024. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission: a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion online.

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemperaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment.Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed $100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds $25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12226 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of $50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.

Erie County

James Maurer
505 Franklin Street
Buffalo NY 14202

Schedule Year 2023 through 2024
Date Requested 04/25/2024
PRC# 2024004867

Location Buffalo
Project ID# 2022-818-02
Project Type Interior renovations to lower level ballroom.

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information
All information must be supplied

Federal Employer Identification Number: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Amount of Contract: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

Contract Type:
[ ] (01) General Construction
[ ] (02) Heating/Ventilation
[ ] (03) Electrical
[ ] (04) Plumbing
[ ] (05) Other : _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to $1,500 for a first offense and up to $5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, https://dol.ny.gov/public-work-and-prevailing-wage
If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor**, you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

- **Civil Penalty** — First offense: Up to $2,500 per employee

  Subsequent offense(s): Up to $5,000 per employee

- **Criminal Penalty** — First offense: Misdemeanor - up to 30 days in jail, up to a $25,000 fine and debarment from performing public work for up to one year.

  Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a $50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

WE ARE YOUR DOL

NEW YORK STATE Department of Labor

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at: https://dol.ny.gov/bureau-public-work

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5287		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is $250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.)*
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is $3 million in Bronx, Kings, New York, Queens and, Richmond counties; $1.5 million in Nassau, Suffolk and Westchester counties; and $500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirement s on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12226

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Erie County General Construction

Boilermaker — 04/01/2024

JOB DESCRIPTION Boilermaker **DISTRICT** 12

ENTIRE COUNTIES
Allegany, Cattaraugus, Chautauqua, Chemung, Erie, Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Schuyler, Steuben, Wayne, Wyoming, Yates

WAGES
Per hour: 07/01/2023

Boilermaker	$ 36.10

The wage rate will be 90% of the above for Maintenance work on boilers less than 100,000 pph.

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour: $ 32.30*

*NOTE: $31.06 of this amount is for every Hour "Paid"

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
1st Term at 12 Months
Terms 3-8 at 6 Months
Per Hour:
1st 65%
3rd 70% 4th 75% 5th 80% 6th 85% 7th 90% 8th 95%

Supplemental Benefits per hour:

All Terms	$ 32.30**

**NOTE: $31.06 of this amount is for every Hour "Paid"

12-7

Carpenter - Building — 04/01/2024

JOB DESCRIPTION Carpenter - Building **DISTRICT** 12

ENTIRE COUNTIES
Erie

PARTIAL COUNTIES
Cattaraugus: Townships of Persia and Perrysburg

WAGES
Per hour: 07/01/2023
Building:

Carpenter	$ 33.53
FloorLayer	33.53
Certified Welder	34.53
Hazardous Waste Worker	35.03
Diver-Dry Day	34.53
Diver Tender	34.53
Diver-Wet Day***	61.25

Hazardous Waste Worker: Hazardous sites requiring personal protective equipment.

*** Diver rate applies to all hours worked on the day of dive.

Depth pay for divers:	0' to 80'	no additional fee
	81' to 100'	additional $0.50 per foot
	101' to 150'	additional $0.75 per foot
	151' and deeper	additional $1.25 per foot
Penetration pay:	0' to 50'	no additional fee
	51' to 100'	additional $0.75 per foot
	101' and deeper	additional $1.00 per foot

SHIFT WORK
On Agency/Owner mandated shift work, the following rates will be applicable:
1st Shift - Regular Rate
2nd Shift - Premium of 7% of base wage per hour
3rd Shift - Premium of 14% of base wage per hour
Shift work shall be defined as implementing at least two (2) shifts in a twenty-four (24) consecutive hour period. Shift work must be for a minimum of three (3) consecutive days.

NOTE - The 'Employer Registration' (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour worked:

Carpenter(s)	$ 29.60
Diver(s)	29.60

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following percentage of Journeyman's base wage:

Floorlayer Apprentices:

1st	2nd	3rd	4th
65%	70%	75%	80%

Carpenter Apprentices:

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour worked:

1st	2nd	3rd	4th
$12.75	$12.75	$15.35	$15.35

12-276B-Cat

Carpenter - Building / Heavy&Highway **04/01/2024**

JOB DESCRIPTION Carpenter - Building / Heavy&Highway **DISTRICT** 2

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

PARTIAL COUNTIES

Orange: The area lying on Northern side of Orange County demarcated by a line drawn from the Bear Mountain Bridge continuing west to the Bear Mountain Circle, continue North on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W, then east on County Road 107 to Route 32, then north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES

Wages per hour:	07/01/2023	07/01/2024 Additional
Carpenter - ONLY for Artificial Turf/Synthetic Sport Surface	$ 34.48	$ 2.25*

*To be allocated at a later date
Note - Does not include the operation of equipment. Please see Operating Engineers rates.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 26.30

OVERTIME PAY
See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY
Paid: See (5) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE
Notes:
When a holiday falls upon a Saturday, it shall be observed on the preceding Friday. Whan a holiday falls upon a Sunday, it shall be observed on the following Monday.
An employee taking an unexcused day off the regularly scheduled day before or after a paid Holiday shall not receive Holiday pay.

REGISTERED APPRENTICES
Wages per hour (1300 hour terms at the following percentage of Journeyman's wage):

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental Benefits per hour:

1st term	$ 17.56
2nd term	18.04
3rd term	20.06
4th term	20.54

2-42AtSS

Carpenter - Heavy&Highway 04/01/2024

JOB DESCRIPTION Carpenter - Heavy&Highway **DISTRICT** 12

ENTIRE COUNTIES
Erie

WAGES
Per hour:

	07/01/2023
Carpenter	$ 38.69
Certified Welder	41.19
Diver-Dry Day	39.69
Diver-Wet Day**	63.69
Diver Tender	39.69
Hazardous Material Worker	40.19
Piledriver	38.69
Effluent & Slurry Diver-Dry Day	59.54
Effluent & Slurry Diver-Wet Day	95.54

Hazardous Waste Worker: Hazardous sites requiring personal protective equipment.

** Diver rate applies to all hours worked on the day of dive.

Depth pay for divers:		
	0' to 50'	no additional fee
	51'to 100'	additional $0.50 per foot
	101' to 150'	additional $0.75 per foot
	151' to 200'	additional $1.25 per foot

Penetration pay:	0' to 50'	no additional fee
	51' to 100'	additional $0.75 per foot
	101' to deeper	additional $1.00 per foot

NOTE - The 'Employer Registration' (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour worked:

Carpenter(s)	$ 32.09
Diver(s)	32.09

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following percentage of Journeyman's wage:

Carpenter Apprentice:

1st	2nd	3rd	4th	5th
65%	70%	75%	80%	85%

Pile Driver Apprentice (1300hour terms at percentage of Pile Driver Rate)

1st	2nd	3rd	4th
65%	70%	75%	80%

Supplemental benefits Carpenter/Pile Driver per hour worked:

1st	2nd	3rd	4th	5th
$ 18.53	$ 19.09	$ 21.19	$ 21.74	$ 22.29

12-276HH-Erie

Electrician — 04/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 3

ENTIRE COUNTIES
Erie

PARTIAL COUNTIES
Cattaraugus: Only the Townships of Ashford, East Otto, Ellicottville, Farmersville, Freedom, Franklinville, Lyndon, Machias, Mansfield, New Albion, Otto, Perrysburg, Persia and Yorkshire.
Genesee: Only the Townships of Alabama, Alexander, Darien, Oakfield,Pembroke and that portion of the Towns of Batavia and Elba that are west of Little Tonawanda Creek; Tonawanda Creek; the City limits of Batavia (in effect prior to Feb. 1, 1970) and State Highway 98 north of the City of Batavia, then north on Highway 98 to the Orleans County line.
Wyoming: Only the Townships of Arcade, Attica, Bennington, Eagle, Java, Orangeville, Sheldon and Wethersfield.

WAGES
Per hour: 07/01/2023

Electrician*	$ 39.99

* Includes teledata work

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:
17.3% for work from 4:30PM - 1:00AM
31.4% for work from 12:30AM - 9:00AM
Additional $0.50/hr in shafts over 25 ft. deep and in underground tunnels over 75 ft. long.
Additional $0.75/hr for work on toothpicks, structural steel, temporary platforms, swinging scaffolds, boatswain chairs, smoke stacks or water towers 30 ft above the floor or for work on rolling scaffolds and ladders over 50 ft.
Additional $1.50/hr for Cable Splicers on such work as lead, and shielded cable and splices or terminations on cable 5KV and above.

Additional $1.00/hr for Hot work (Atomic plants).
Additional $2.00/hr for work on radio, TV, light towers and floating platforms or climbing ladders in excess of 100 ft. high.

SUPPLEMENTAL BENEFITS
Per hour:

$ 31.55*

* NOTE - add 3% of the posted straight time or applicable premium wage rate.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following wages:

0 to 1000	to 2000	to 3500	to 5000	to 6500	to 8200
$ 14.80	$ 16.00	$ 18.00	$ 22.00	$ 28.00	$ 32.00

Supplemental benefits per hour:

0 to 2000	to 6500	to 8200
$ 14.31*	$ 25.30*	$ 31.55*

* NOTE - add 3% of the posted straight time or applicable premium wage rate.

3-41

Elevator Constructor — 04/01/2024

JOB DESCRIPTION Elevator Constructor **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour:	07/01/2023
Elevator Constructor	$ 57.37
Helper	40.16

NOTE The Employer Registration (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:

$ 37.34

Note - add 6% of regular hourly rate for all hours worked.

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 15, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year (1,700 hour each) terms at the following percentage of Journeyman's wage:

1st*	2nd	3rd	4th
55%	65%	70%	80%

Supplemental benefits per hour:

$ 37.34

* Note - 0-6 months of the 1st year term is paid at 50% of Journeyman's wage with no Supplemental benefits.

Note - add 6% of regular hourly rate for all hours worked.

Glazier 04/01/2024

JOB DESCRIPTION Glazier **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, Wyoming

WAGES

Per hour:	07/01/2023
Glazier	$ 30.48
Working off Suspended Scaffold (Swing Stage)	32.48
Maintenance	19.80*

* Note - This rate to be used only for all repair and replacement work such as glass breakage, glass replacement, door repair and board ups.

NOTE The Employer Registration (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS

Per hour:	
Journeymen Glazier	$ 26.59
Maintenance	16.76

OVERTIME PAY
See (B, E2, F, R) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE for Glazier and Glazier Apprentices.
Paid:	See (5, 6) on HOLIDAY PAGE for Maintenance
Overtime:	See (5, 6) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:

Glazier: 1000 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 18.00	$ 19.00	$ 20.00	$ 21.00	$ 22.00	$ 23.00	$ 24.00	$ 25.00

Supplemental benefits per hour:

1st & 2nd terms	$ 8.60
3rd & 4th terms	11.10
5th & 6th terms	12.60
7th & 8th terms	14.10

3-660

Insulator - Heat & Frost 04/01/2024

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming

PARTIAL COUNTIES
Genesee: Only the Townships of Alabama, Alexander, Darien, Oakfield and Pembroke.

WAGES

Per Hour:	07/01/2023
Heat & Frost Insulator	$ 36.10

SUPPLEMENTAL BENEFITS

Per hour:	
	$ 27.99

OVERTIME PAY
See (B, *E, **Q) on OVERTIME PAGE

* Note - Double time after 10 hours on Saturday.
** Note - Triple time on Labor Day if WORKED.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
60%	70%	75%	80%

Supplemental Benefits per hour:

1st	$ 8.46
2nd	12.04
3rd	27.99
4th	27.99

Ironworker 04/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 3

ENTIRE COUNTIES
Cattaraugus, Chautauqua

PARTIAL COUNTIES
Allegany: Entire county except the Towns of Birdsall, Burns and Grove.
Erie: All except the Town of Grand Island north of Whitehaven Road.
Genesee: Only the Townships of Alabama, Alexander, Darien and Pembroke
Steuben: Only the Townships of Canisteo, Freemont, Greenwood,Hartsville, Hornell, Hornellsville, Howard, Jasper, Troupsburg and West Union
Wyoming: Only the Townships of Arcade, Attica, Bennington, Eagle,Gainsville, Java, Orangeville, Pike, Sheldon, Warsaw and Wethersfield.

WAGES
Per hour: 07/01/2023

Structural	$ 33.40
Ornamental	33.40
Layout	33.40
Rodmen	33.40
Reinforcing	33.40
Welders	33.40
Riggers & Mach. Movers	33.40
Curtain Wall Erector	33.40
Window Erector	31.05
Fence Erector	31.97

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:
10% for second shift work from 2:00PM - 7:00PM
15% for third shift work from 7:00PM - 12:00AM

When a single irregular shift is worked outside the standard workday with the start times based on second and third shifts, a 10% premium on hours worked applies.

SUPPLEMENTAL BENEFITS
Per hour:

Fence erectors	$ 30.63
All others	32.13

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following wage:

1st	2nd	3rd	4th
$ 19.50	$ 21.50	$ 23.50	$ 25.50

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 14.53	$ 24.44	$ 25.85	$ 27.27

3-6

Ironworker 04/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 3

ENTIRE COUNTIES
Niagara

PARTIAL COUNTIES
Erie: Only that portion of the Township of Grand Island north of Whitehaven Road.
Orleans: Only the Townships of Ridgeway, Shelby and Yates.

WAGES
Per hour: 07/01/2023

Structural	$ 33.00
Ornamental	33.00
Reinforcing	33.00
Rigger & Mach. Mover	33.00
Pre-Engineered	33.00
Fence Erector	33.00
Pre-Cast Erector	33.00
Welder	33.00
Window Erector	33.00

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:
10% for second shift work from 2:00PM - 7:00PM
15% for third shift work from 7:00PM - 12:00AM

When a single irregular shift is worked outside the standard workday with the start times based on second and third shifts, a 10% premium on hours worked applies.

SUPPLEMENTAL BENEFITS
Per hour:
$ 32.80

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following wage:

1st term	$ 19.50
2nd term	21.50
3rd term	23.50
4th term	25.50

Supplemental benefits per hour:

1st term	$ 12.78
2nd term	20.66
3rd term	21.78
4th term	22.91

3-9

Laborer - Building 04/01/2024

JOB DESCRIPTION Laborer - Building **DISTRICT** 3

ENTIRE COUNTIES
Erie

PARTIAL COUNTIES
Cattaraugus: Only the Townships of Perrysburg and the Village Gowanda.

WAGES
CLASS A: Basic, Safety Man, Flagman, Tool Room Man, Nurseryman, Demolition Worker, Top Man, Wrecker, IBC Barriers Except on Structures, Guard Rail, Asphalt Shovelers, Foundation Laborer over 8' in Depth, Hod Carriers, Plaster Tender, Plaster Scaffold Builder, Pneumatic Gas, Electric Tool Operator including all forms of Busters, Jackhammers and Chipping Guns, Steel Burners.

CLASS B: Mortar Mixer, Asphalt Smoothers, Pneumatic Gas, Electric Tool Operator including all forms of Busters, Jackhammers and Chipping Guns over 8' in depth.

CLASS C: Worker on any Swing Scaffold, Blaster, Plumbing Laborer, Wagon Drill Operator, Bottomman (caisson or cofferdam), Laser Setter, Asphalt Rakers, Asphalt Screed Man.

CLASS D: Stone Cutter, Curb Setter and Flag Layer.

CLASS E: Wearing of replaceable cartridge respirator.

CLASS F: Asbestos Removal, Deleader.

CLASS G: Hazardous Waste Worker.

Per hour:	07/01/2023
Building Laborer:	
CLASS A	$ 30.43
CLASS B	30.60
CLASS C	30.71
CLASS D	31.18
CLASS E	31.43
CLASS F	31.93
CLASS G	32.43

SUPPLEMENTAL BENEFITS
Per hour:
$ 28.40

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (22) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0 to 1500	to 3000	to 4000
70%	80%	90%

Supplemental benefits per hour:

$ 28.40

3-210b

Laborer - Heavy&Highway **04/01/2024**

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 3

ENTIRE COUNTIES
Erie

WAGES
Heavy/Highway Laborer:
GROUP A: Basic, Drill Helper, Flagman, Outboard and Hand Boats, Demolition Worker, Nurseryman, IBC Barriers (except on structures), Guard Rails, Road Markers.

GROUP B: Grade Checker, Chain Saw, Concrete Aggregate Bin, Concrete Bootmen, Gin Buggy, Hand or Machine Vibrator, Jack Hammer, Mason Tender, Mortar Mixer, Pavement Breaker, Handlers of Steel Mesh, Small Generators for Laborers' Tools, Pipe Layers, Vibrator Type Rollers, Tamper, Drill Doctor, Tail or Screw Operator on Asphalt Paver, Water Pump Operators (2" and Single Diaphragm), Nozzle (Asphalt, Gunite, Seeding, and Sand Blasting), Laborers on Chain Link Fence Erection, Rock Splitter and Power Unit, Pusher Type Concrete Saw and all other Gas, Electric, Oil and Air Tool Operators, Wrecking Laborer and Laser Man.

GROUP C: All Rock or Drilling Machine Operators (Except Quarry Master and Similar Type), Acetylene Torch Operators, Asphalt Raker, Powderman and Welder.

GROUP D: Blasters, Curb and Flatwork Formsetter not on structures, Stone or Granite Curb Setters and Stone Cutter.

Per hour:	07/01/2023
Heavy/Highway Laborer:	
GROUP A	$ 34.66
GROUP B	34.86
GROUP C	35.06
GROUP D	35.26

For all Deleader & Asbestos work add $1.50 to Group A rate.
For all Hazardous waste work add $2.00 to Group A rate.
For use of replaceable cartridge respirator add $1.00 to Group A rate.
An additional $4.00 per hour is required when an irregular work shift starting any time from 3:30PM to 1:00AM is mandated either in the job specification or by the contracting agency.

Sewer/Water Laborer:
GROUP A: Basic, Flagman, Top man, Wreckers.

GROUP B: Foundation, Plaster tender, Scaffold bootman, Pneumatic, gas, electric, tool operator, jackhammer, chipping guns.

GROUP C: Mortar Mixer, over 8 ft. in depth.

GROUP D: Pavement formsetter, Steelburner, Caisson, Wagon Drill Oper., PipeLayer, Swing Scaffold.

GROUP E: Utility pave driver, Laser operator.

GROUP F: Blaster.

Per hour:	07/01/2023
Sewer/Water Laborer:	
GROUP A	$ 34.66
GROUP B	34.76
GROUP C	34.81
GROUP D	34.91
GROUP E	35.26
GROUP F	35.66

For all Deleader & Asbestos work add $1.50 to Group A rate.
For all Hazardous waste work add $2.00 to Group A rate.
An additional $4.00 per hour is required when an irregular work shift starting any time from 3:30PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS
Per hour:
$ 28.90

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0 to 1500	to 3000	to 4000
70%	80%	90%

Supplemental benefits per hour:

$ 28.90

3-210h

Laborer - Tunnel 04/01/2024

JOB DESCRIPTION Laborer - Tunnel **DISTRICT** 3

ENTIRE COUNTIES
Erie

WAGES
CLASS A: Mole Nipper, Powder Handler, Changehouse Attendant and Top Laborer.

CLASS B: Air Spade, Jackhammer, Pavement Breaker.

CLASS C: Top Bell.

CLASS D: Bottom Bell, Side or Roofbelt Driller, Maintenance men, Burners, Block Layers, Rodmen, Caulkers, Miners helper, Trackmen, Nippers, Derailmen, Electrical Cablemen, Hosemen, Groutmen, Gravelmen, Form Workers, Movers and Shaftmen, Conveyor men.

CLASS E: Powder Monkey.

CLASS F: Blasters, Ironmen and Cement Worker, Miner, Welder, Heading Driller.

CLASS G: Steel Erectors, Piledriver, Rigger.

Per hour:	07/01/2023
Tunnel Laborer:	
CLASS A	$ 36.16
CLASS B	36.31
CLASS C	36.41
CLASS D	36.91
CLASS E	37.01
CLASS F	37.41
CLASS G	37.66

For all Deleader & Asbestos work add $1.50 to Class A rate.
For all Hazardous waste add $2.00 to Class A rate.
For use of replaceable cartridge respirator add $1.00 to Group A rate.
An additional $4.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS
Per hour:

$ 28.90

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0 to 1500	to 3000	to 4000
70%	80%	90%

Supplemental benefits per hour:

$ 28.90

3-210t

Lineman Electrician 04/01/2024

JOB DESCRIPTION Lineman Electrician **DISTRICT** 6

ENTIRE COUNTIES

Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe, or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

Below rates applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. (Ref #14.01.01)

Per hour:	07/01/2023	05/06/2024
Group A:		
Lineman, Technician	$ 57.40	$ 58.90
Crane, Crawler Backhoe	57.40	58.90
Welder, Cable Splicer	57.40	58.90
Group B:		
Digging Mach. Operator	51.66	53.01
Tractor Trailer Driver	48.79	50.07
Groundman, Truck Driver	45.92	47.12
Equipment Mechanic	45.92	47.12
Flagman	34.44	35.34

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work". (Ref #14.02.01-A)

Group A:		
Lineman, Technician	$ 57.40	$ 58.90
Crane, Crawler Backhoe	57.40	58.90
Cable Splicer	63.14	64.79
Certified Welder, Pipe Type Cable	60.27	61.85
Group B:		
Digging Mach. Operator	51.66	53.01
Tractor Trailer Driver	48.79	50.07
Groundman, Truck Driver	45.92	47.12
Equipment Mechanic	45.92	47.12
Flagman	34.44	35.34

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates apply on switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. (Ref #14.02.01-B)

Group A:		
Lineman, Tech, Welder	$ 58.72	$ 60.22
Crane, Crawler Backhoe	58.72	60.22
Cable Splicer	64.59	66.24
Certified Welder, Pipe Type Cable	61.66	63.23

Group B:		
Digging Mach. Operator	52.85	54.20
Tractor Trailer Driver	49.91	51.19
Groundman, Truck Driver	46.98	48.18
Equipment Mechanic	46.98	48.18
Flagman	35.23	36.13

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. (Ref #14.03.01)

Group A:		
Lineman, Tech, Welder	$ 59.91	$ 61.41
Crane, Crawler Backhoe	59.91	61.41
Cable Splicer	59.91	61.41
Group B:		
Digging Mach. Operator	53.92	55.27
Tractor Trailer Driver	50.92	52.20
Groundman, Truck Driver	47.93	49.13
Equipment Mechanic	47.93	49.13
Flagman	35.95	36.85

Additional $1.00 per hour for entire crew when a helicopter is used.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM to 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM to 1:00 AM REGULAR RATE PLUS 17.3 %
3RD SHIFT	12:30 AM to 9:00 AM REGULAR RATE PLUS 31.4 %

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS

Per hour:

	07/01/2023	05/06/2024
Group A	$ 29.40 *plus 7% of the hourly wage paid	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 26.40 *plus 7% of the hourly wage paid	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.
NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES
WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2023	05/06/2024
$ 26.40 *plus 7% of the hourly wage paid	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249a

Lineman Electrician - Teledata — 04/01/2024

JOB DESCRIPTION Lineman Electrician - Teledata **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2023	01/01/2024	01/01/2025
Cable Splicer	$ 37.73	$ 39.24	$ 40.81
Installer, Repairman	$ 35.81	$ 37.24	$ 38.73
Teledata Lineman	$ 35.81	$ 37.24	$ 38.73
Tech., Equip. Operator	$ 35.81	$ 37.24	$ 38.73
Groundman	$ 18.98	$ 19.74	$ 20.53

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2023	01/01/2024	01/01/2025
Journeyman	$ 5.70 *plus 3% of the hourly wage paid	$ 5.70 *plus 3% of the hourly wage paid	$ 5.70 *plus 3% of the hourly wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting — 04/01/2024

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming, Yates

WAGES
Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.
(Ref #14.01.01)

Per hour:	07/01/2023	05/06/2024
Group A:		
Lineman, Technician	$ 49.32	$ 50.54
Crane, Crawler Backhoe	49.32	50.54
Certified Welder	51.79	53.07
Group B:		
Digging Machine	44.39	45.49
Tractor Trailer Driver	41.92	42.96
Groundman, Truck Driver	39.46	40.43
Equipment Mechanic	39.46	40.43
Flagman	29.59	30.32

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

NOTE: THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM	REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM	REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM	REGULAR RATE PLUS 31.4%

NOTE - The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour worked (but also required on non-worked holidays):

	07/01/2023	05/06/2024
Group A	$ 29.40 *plus 7% of the hourly wage paid	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 26.40 *plus 7% of the hourly	$ 26.90 *plus 7% of the hourly

	wage paid	wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE. *Note* Double time for all emergency work designated by the Dept. of Jurisdiction.
NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES
WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyman Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

	07/01/2023	05/06/2024
	$ 26.40 *plus 7% of the hourly wage paid	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249a-LT

Lineman Electrician - Tree Trimmer **04/01/2024**

JOB DESCRIPTION Lineman Electrician - Tree Trimmer **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES
Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also would include stump removal near underground energized electrical lines, including telephone and CATV lines.

Per hour:	07/01/2023	12/31/2023
Tree Trimmer	$ 29.80	$ 31.44
Equipment Operator	26.35	27.80
Equipment Mechanic	26.35	27.80
Truck Driver	21.95	23.15
Groundman	18.07	19.07
Flag person	14.20	14.20*

*NOTE- Rate effective on 01/01/2024 - $15.00 due to minimum wage increase

SUPPLEMENTAL BENEFITS
Per hour:

	07/01/2023	12/31/2023
Journeyman	$ 10.48 *plus 4.5% of the hourly wage paid	$ 10.48 *plus 4.5% of the hourly wage paid

* The 4.5% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY
See (B, E, Q, X) on OVERTIME PAGE

NOTE: WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (5, 6, 8, 15) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE
NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday.
All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 3

ENTIRE COUNTIES
Erie, Niagara

PARTIAL COUNTIES
Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour:	07/01/2023	04/01/2024	04/01/2025 Additional
Plasterer	$ 31.40	$ 32.55	$ 1.50

Additional $3.00/hr for work on swing stage over 20 feet.

SUPPLEMENTAL BENEFITS

Per hour:		
	$ 23.74	$ 24.09

OVERTIME PAY
Exterior work only See (B, E, E2, Q) on OVERTIME PAGE.
All other work See (B, E, Q) on OVERTIME PAGE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following dollar amounts:

	07/01/2023
0-2000	$ 20.00
2000-4000	$ 22.00
4000-6000	$ 24.00
6000-8000	$ 26.00

Supplemental benefits per hour:

Hour terms at the following dollar amounts:

0-2000	$ 3.00
2000-4000	$ 4.00
4000-8000	$ 5.00

3-9-Pltr

Mason - Building — 04/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 5

ENTIRE COUNTIES
Erie, Niagara

PARTIAL COUNTIES
Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per Hour:	07/01/2023
Building:	
Bricklayer	$ 36.82
Stone Mason	36.82

Tuck Pointer 36.82

** NOTE-The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to JUNE 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four(4),Ten(10)hour days may be worked at straight time during a week Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman $ 31.76

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1250 hour terms at the following wage:

1st	2nd	3rd	4th
$ 28.40	$ 29.07	$ 31.11	$ 34.03

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 12.65	$ 18.86	$ 23.70	$ 27.67

5-3B-Z3

Mason - Building / Heavy&Highway 04/01/2024

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 3

ENTIRE COUNTIES
Erie

PARTIAL COUNTIES
Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES
Per hour: 07/01/2023

Cement Mason $ 32.55

Additional $0.25 per hr for Swing scaffold or exterior scaffold 42' or higher.
Additional $1.00 per hr when required to wear respirator.

SUPPLEMENTAL BENEFITS
Per hour:
$ 33.22

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following dollar amounts:

1st	2nd	3rd	4th	5th	6th
$ 19.53	$ 21.16	$ 22.79	$ 24.41	$ 26.04	$ 27.67

Supplemental benefits per hour:

1st	2nd	3rd	4th	5th	6th
$ 8.86	$ 11.86	$ 11.80	$ 15.05	$ 17.21	$ 20.54

3-111Erie

Mason - Heavy&Highway 04/01/2024

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 5

ENTIRE COUNTIES
Allegany, Broome, Chautauqua, Chemung, Chenango, Cortland, Delaware, Genesee, Livingston, Monroe, Ontario, Orleans, Otsego, Schuyler, Seneca, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

PARTIAL COUNTIES
Cattaraugus: Enitre county except in the Township of Perrysburg and the Village of Gowanda only the Bricklayer classification applies.
Erie: Only the Bricklayer classification applies.
Niagara: Only the Bricklayer classification applies.

WAGES

Per hour:	07/01/2023
Heavy & Highway:	
Cement Mason	$ 36.88
Bricklayer	36.88

** NOTE-The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to JUNE 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four(4),Ten(10)hour days may be worked at straight time during a week Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 23.53

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1500 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
50%	60%	70%	80%

Supplemental benefits per hour:

1st term	$ 14.03
2nd term	$ 22.97
3rd term	$ 23.11
4th term	$ 23.25

5-3h

Mason - Tile Finisher 04/01/2024

JOB DESCRIPTION Mason - Tile Finisher **DISTRICT** 5

ENTIRE COUNTIES
Erie, Niagara, Orleans

PARTIAL COUNTIES
Cattaraugus: Only the Township of Perrysburg and the Village of Gowanda.

WAGES

Per hour:	07/01/2023
Building:	
Marble, Slate, Terrazzo and Tile Finisher	$ 33.71

** NOTE-The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to JUNE 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four(4),Ten(10)hour days may be worked at straight time during a week Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour: $ 16.97

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1200 hours 1st and 2nd term and 1300 hours 3rd term at the following wage:

1st	2nd	3rd
$ 21.37	$ 24.34	$ 27.62

Supplemental benefits per hour:

1st	2nd	3rd
$ 8.94	$ 11.06	$ 12.87

5-3TF - Z3

Mason - Tile Setter — 04/01/2024

JOB DESCRIPTION Mason - Tile Setter **DISTRICT** 5

ENTIRE COUNTIES
Erie, Niagara, Orleans

PARTIAL COUNTIES
Cattaraugus: Only in the Township of Perrysburg and the Village of Gowanda.

WAGES
Per hour: 07/01/2023
Building:
Marble, Slate, Terrazzo and Tile Setter $ 36.85

** NOTE-The "Employer Registration" (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to JUNE 30, 2023 will expire within the granted time frame.

For Pre-Registered Projects Four(4),Ten(10)hour days may be worked at straight time during a week Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour: $ 31.23

OVERTIME PAY
See (B,E,E2*,Q) on OVERTIME PAGE
*Note - Or other conditions beyond the employer's control such as fire or natural disaster.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1250 hour terms at the following wage:

1st	2nd	3rd	4th
$ 28.28	$ 28.90	$ 30.72	$ 34.34

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 12.47	$ 18.68	$ 23.69	$ 26.91

5-3TS - Z3

Millwright — 04/01/2024

JOB DESCRIPTION Millwright **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Wyoming, Yates

WAGES
THE FOLLOWING RATE APPLIES TO ANY GAS/STEAM TURBINE AND OR RELATED COMPONENT WORK, INCLUDING NEW INSTALLATIONS OR MAINTENANCE AND ANY/ALL WORK PERFORMED WITHIN THE PROPERTY LIMITS OF A NUCLEAR FACILITY.

Per hour:	07/01/2023	07/01/2024 Additional	07/01/2025 Additional
Millwright - Power Generation	$ 43.05	$ 2.50	$2.50

NOTE: ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):
- Certified Welders shall receive an additional $1.75 per hour provided he/she is directed to perform certified welding.
- If a work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive an additional $1.50 per hour.
- An employee performing the work of a machinist shall receive an additional $2.00 per hour. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional $1.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour paid:

Journeyman	$ 27.40*

*NOTE: Subject to OT premium

OVERTIME PAY
See (B, E, E2, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: Any holiday that falls on Sunday shall be observed the following Monday. Any holiday that falls on Saturday shall be observed the preceding Friday.

REGISTERED APPRENTICES
WAGES per hour: One year terms at the following percentage of Journeyman's wage:

Appr. 1st year	65 %*
Appr. 2nd year	75 %*
Appr. 3rd year	80 %*
Appr. 4th year	90 %*

*NOTE: Additional premium for the following work listed below:

Certified Welder	$ 1.75
Hazardous Waste Work	1.50
Machinist	2.00
Underground (500' and below)	1.00

SUPPLEMENTAL BENEFITS per hour:

Appr. 1st year	$ 11.89
Appr. 2nd year	22.75
Appr. 3rd year	24.30
Appr. 4th year	25.85

6-1163Power

Millwright **04/01/2024**

JOB DESCRIPTION Millwright **DISTRICT** 12

ENTIRE COUNTIES
Erie, Genesee, Niagara

WAGES
Per hour: 07/01/2023

Building	$ 38.29
Heavy & Highway*	41.29

*All Heavy & Highway Millwright construction will be paid at the rate indicated above. H/H work performed on hazardous waste sites where employees are required to wear protective gear shall receive an additional $2.00 per hour over the Millwright H/H rate for all hours worked on the day protective gear was worn.

NOTE ADDITIONAL PREMIUMS PAID FOR THE FOLLOWING WORK LISTED BELOW (amount subject to any overtime premiums):
- Certified Welders shall receive $1.75 per hour in addition to the current Millwright's rate provided he/she is directed to perform certified welding.
- If a building work site has been declared a hazardous site by the Owner and the use of protective gear (including, as a minimum, air purifying canister-type chemical respirators) are required, then that employee shall receive a $1.50 premium per hour.
- An employee performing the work of a machinist shall receive $2.00 per hour in addition to the current Building & Heavy Millwright's rate. For the purposes of this premium to apply, a "machinist" is a person who uses a lathe, Bridgeport, milling machine or similar type of tool to make or modify parts.
- When performing work underground at 500 feet and below, the employee shall receive an additional $1.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour Paid:

All Classifications	$ 31.23

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1300 hour terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th
65%	75%	80%	90%

Supplemental Benefits per hour worked:

1st	2nd	3rd	4th
$12.54	$ 25.63	$ 27.49	$ 29.37

12-1163-Gen/Nia/Orl/Wyo

Operating Engineer - Building — 04/01/2024

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 12

ENTIRE COUNTIES
Cattaraugus, Chautauqua, Erie, Niagara, Orleans, Wyoming

PARTIAL COUNTIES
Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

CLASS A: Air Hoist, All Boom Type Equipment, All Pans and Carry-Alls, Archer Hoist, Asphalt Curb and Gutter Machines, Asphalt Roller, Asphalt Spreader or Paver, Automatic Fine Grade Machine (CMI or similar, first and second operator), Backhoe and Pullhoe, Backhoe and Pullhoe (tractor mounted, rubber tired), Back Filling Machine, Belt Placer (CMI or similar type), Bending Machine (Pipe), Bituminous Spreader and Mixer, Blacktop Plants (Automated and Non-automated), Blast or Rotary Drill (Truck or Track Mounted), Blower for Burning Brush, Boiler (when used for power), Boom Truck (excluding pick-up and delivery), Boring Machine, Bulldozer, Cableway, Cage Hoist, Caisson Auger, Central Mix Plant (and all concrete batching plants), Cherry Picker, Concrete Cleaning Decontamination Machine Operator, Concrete Curb and Gutter Machine, Concrete Curing Machine, Concrete Cutters (Vermeer or Similar Type), Concrete Mixer (over 1/2 cu yd.), Concrete Pavement Spreaders and Finishers, Concrete Paver, Concrete Pump, Conveyor, Core Drill, Crane, Crusher, Decon of Equipment, Derrick, Dragline, Dredge, Drill Rig (Tractor Mounted), Dual Drum Paver, Electric Pump used in conjunction with Well Point Systems, Elevating Grader (self propelled or towed), Elevator, Excavator (all purpose, hydraulically operated), Farm Tractor with Accessories, Fine Grade Machine, Forklift, Front End Loader, Generator (10 outlets or more), Gradall, Grader, Grout or Gunite Machine, Head Tower, Heavy Equipment Robotics Operator/Mechanic, Helicopter (when used for hoisting), Hoist (one drum), Hoisting Engine, Horizontal Directional Drill Locator, Horizontal Directional Drill Operator, Hydraulic Boom, Hydraulic Hammer (self-propelled), Hydraulic Pipe Jack Machine (or similar type machine), Hydraulic Rock Expander (or similar type machine), Hydraulic System Pumps, Hydro Crane, Hydro Hammer (or similar type), Industrial Tractor, Jersey Spreader, Kolman Plant Loader (and similar type loaders), Laser Screed, Locomotive, Lubrication Truck, Maintenance Engineer, Maintenance, Lubrication Unit or Truck, Mine Hoist, Mixer for Stabilized Base (self-propelled), Monorail, Motorized Hydraulic Pin Puller, Motorized Hydraulic Seeder, Mucking Machine, Mulching Machine, Multiple Drum Hoist (more than one drum in use), Overhead Crane, Peine Crane (or similar type), Pile Driver, Plant Engineer, Pneumatic Mixer, Post Hole Digger and Driver, Power Broom, Pump Crete, Push Button Hoist, Push or Snatch Cat, Quarry Master or equivalent, Road Widener, Rock Bit Sharpener (all types), Roller (all), Rolling Machine (pipe), Rotomill, Scissors Trucks, Lift, or Boom Lift of any type (when used for hoisting), Scoopmobile, Shovel, SideBoom, Skidsteer/Bobcat (Similar Type), Skimmer, Slip Form Paver (CMI or similar type), Snorkel/Vacuum Truck, Strato-Tower, Stump Chipping Machine, Tire Truck and Drivers performing tire repair (exclude outside vendor), Towed Roller, Tractor Drawn Belt-Type Grader/Loader, Tractor Shovel, Tractor with Towed Accessories, Tractor (when using winch power), Tractors, Trencher, Truck Crane, Truck Mechanic and Helper (exclude Teamsters when repairing their own trucks), Tunnel Shovel, Tube Finisher (CMI and similar type), Ultra High Pressure Waterjet Cutting Tool System Operator/Mechanic, Vacuum Blasting Machine Operator/Mechanic, Vibratory Compactor, Vibro Tamp, Well Drilling Machine, Well Point, Winch, Winch Truck with A Frame.

CLASS B: Aggregate Bin, Aggregate Plant, Apprentice Engineer, Apprentice Engineer Driver, Articulated Off Road Material Hauler, Boiler (used in conjunction with production), CMI and similar type Concrete Spreads (Apprentice Engineer), Cement Bin, Chipping Machine and Chip Spreader, Compressors (4 or less), Compressors (any size, but subject to other provisions for Compressors, Dust Collectors, Generators, Mechanical Heaters, Pumps, Welding Machines - four of any type or combination), Concrete Mixer (1/2 cu. yd. and under), Fireman, Form Tamper, Form Trucks (excluding Teamster or delivery), Fuel Truck or Drivers (exclude Teamster or delivery), Heaters, Heating Boiler (used for temporary heat), Helper on Lubrication Unit or Truck, Jeep Trencher, Power Heaterman, Power Plant in excess of 10 K.W., Pumps, Revinius Widener, Steam Boilers (if manning or license by local law is required), Steam Cleaner (when used for cleaning equipment on the job site), Welding Machine (1 machine over 300 amps or 2 or 3 machines regardless of amps).

Operating Engineer- Building:

Per hour:	07/01/2023
Class A	$ 41.83
Class B	37.17
Crane(Up to 60 Tons)	44.58
" (61 to 199 Tons)	45.58
" (200 to 399 Tons)	46.08
" (400 Tons or more)	46.58

Additional $5.00/hr. for Any Tower Crane
Additional $2.50/hr. for Hazardous Work Site
Additional $1.00/hr. for Tunnel Work
Additional $2.25/hr. for Agency Mandated Shift Work

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyman	$ 33.25**

**Note: For Overtime Hours $25.00 of this amount is paid a straight time, the remaining balance of $8.25 is paid at the same premium as the wage.

OVERTIME PAY
See (B, E, *E2, P, V) on OVERTIME PAGE
* Only Saturdays between October 15th and April 15th.

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
1 year Terms

1st	2nd	3rd	4th
$ 31.23	$ 32.15	$ 33.07	$ 33.99

Supplemental benefits Per Hour:
All Apprentices $ 32.35**

**Note: For Overtime Hours $25.00 of this amount to be paid a straight time rate remaining balance of $7.35 is paid at same premium as the wage.

12-17b

Operating Engineer - Heavy&Highway **04/01/2024**

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 12

ENTIRE COUNTIES
Chautauqua, Erie, Niagara, Orleans

WAGES
Marine Construction/Dredging

Class 1: Diver/Wet Tender, Engineer, Engineer(hydraulic dredge), Blaster.

Class 2(A): Crane, Backhoe Operator, Material Handler, ALL Self-propelled Drill Rigs, Mechanic/Welder, Asst. Engineer(hydraulic dredge), Leverman(hydraulic dredge), Diver/Dry Tender.

Class 2(B): Friction, Lattice Boom, or Crane License Certificate, Endorse Tug or Tow Boat Operator.

Class 3: Deck Equipment Operator, (Machineryman), Maintenance of Crane, Tug/Launch Operator, Loader/Dozer on Barge.

Class 4: Deck Equipment Operator and Machinery Man/Fireman on 4 equipment units or more, Off Road Trucks, Deck Hand, Tug Engineer, Crane Maintenance (50 tons and under/ backhoe 115,000lbs or less), Asst. Tug Operator, Blaster Helper.

Per hour:	07/01/2023
Class 1	$ 50.00
Class 2(A)	48.50
Class 2(B)	51.50
Class 3	44.00
Class 4	39.50

Hazardous/Toxic Waste based on EAP Levels
Additional:
Level A - $2.50/Hr.
Level B - 2.00/Hr.
Level C - 1.00/Hr.
Level D - 0.50/Hr.

SUPPLEMENTAL BENEFITS
Per Hour Paid:

ALL CLASSES $ 34.26

OVERTIME PAY
See (B, E, I, *S) on OVERTIME PAGE
* If the Holiday is Worked

HOLIDAY
Paid: See (5, 6, 15, 25) on HOLIDAY PAGE

12-17 Marine

Operating Engineer - Heavy&Highway **04/01/2024**

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 12

ENTIRE COUNTIES
Cattaraugus, Chautauqua, Erie, Niagara, Orleans, Wyoming

PARTIAL COUNTIES
Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES

CLASS A: Air Hoist, All Boom Type Equipment, All Pans and Carry-All's, Asphalt Curb and Cutter Machines, Asphalt Roller, Asphalt Spreader or Paver, Automatic Fine Grade Machine (CMI or similar, first and second operator), Backhoe and Pullhoe (all), Back Filling Machine, Belt Placer (CMI or similar type), Bending Machine (pipe), Bituminous Spreader and Mixer, Blacktop Plant (all), Blast or Rotary Drill (Truck or Track Mounted), Blower for Burning Brush, Boiler (when used for power), Boom Truck, Boring Machine, Bulldozer, Cableway, Cage Hoist, Caisson Auger, Central Mix Plant (and all Concrete Batching Plants), Cherry Picker, Concrete Cleaning Decontamination Machine, Concrete Curb and Gutter Machine, Concrete Curing Machine, Concrete Mixer (over 1/2 cu. yd.), Concrete Pavement Spreaders and Finishers, Concrete Paver, Concrete Pump, Concrete Saw (self propelled), Conveyor, Convoying Vehicles Convoying Engineer's Equipment, Core Drill, Crane, Crusher, Decontamination of Equipment, Derrick, Dragline, Dredge, Drill Rig (Tractor Mounted), Dual Drum Paver, Electric Pump used in conjunction with Well Point Systems, Elevating Grader (self propelled or towed), Elevator, Excavator (all purpose, hydraulically operated), Farm Tractor with Accessories, Fine Grade Machine, Forklift, Front End Loader, Gradall, Grader, Grout or Gunite Machine, Head Tower, Heavy Equipment Robotics Operator/Mechanic, Hoist (all types), Hoisting Engine, Horizontal Directional Drill Locator, Horizontal Directional Drill Operator, Hydraulic Boom, Hydraulic Hammer (self propelled), Hydraulic Pipe Jack Machine, (or similar type machine), Hydraulic Rock Expander (or similar type machine), Hydraulic System Pumps, Industrial Tractor, Jersey Spreader, Kolman Plant Loader (and similar type Loaders), Laser Screed, Locomotive, Log Skidder (similar type), Maintenance Engineer, Maintenance, Lubrication Unit or Truck, Mine Hoist, Mixer for Stabilized Base (self propelled), Monorail, Motorized Hydraulic Pin Puller, Motorized Hydraulic Seeder, Mucking Machine, Mulching Machine, Overhead Crane, Parts Chasing, Peine Crane (or similar type), Pile Driver, Plant Engineer, Pneumatic Mixer, Post Hole Digger and Post Driver, Power Broom, Pump Crete, Push Button Hoist, Push or Snatch Cat, Quarry Master (or equivalent), Road Widener, Rock Bit Sharpener (all types), Roller (all), Rolling Machine (Pipe), Rotomill, Scoopmobile, Shovel, Side Boom, Skidsteer/Bobcat (similar type), Skimmer, Slip Form Paver (CMI or similar, first and second operator), Snorkel/Vacuum Truck, Strato-Tower, Tire Truck & Repair, Towed Roller, Tractor Drawn Belt-Type Grader/Loader, Tractor Shovel, Tractor with Towed Accessories, Tractors (when using winch power), Trencher, Truck Crane, Tug Boats, Tunnel Shovel, Tube Finisher (CMI and similar), Vacuum Blasting Machine Operator/Mechanic, Vibratory Compactor, Vibro Tamp, Waterjet Cutting Tool System Operator/Mechanic (Ultra High Pressure), Well Drilling Machine, Well Point, Winch, Winch Truck with A Frame.

CLASS B: Aggregate Bin, Aggregate Plant, Apprentice Engineer, Apprentice Engineer Driver, Articulated Off Road Material Hauler, CMI and similar type Concrete Spreads (Apprentice Engineer), Cement Bin, Chipping Machine and Chip Spreader, Compressors (4 or less), Compressors: any size, but subject to other provisions for Compressors, Dust Collectors, Generators, Mechanical Heaters, Pumps, Welding Machines (four of any type or combination), Concrete Mixer (1/2 cu. yd. and under), Fireman, Form Tamper, Fuel Truck, Heating Boiler (used for temporary heat), Helper on Lubrication Unit or Truck, Jeep Trencher, Power Heaterman, Power Plant in excess of 10 K.W., Pumps (4" or over), Revinius Widener, Steam Cleaner, Stump Chipping Machine, Welding Machine (1 machine over 300 amps or 2 or 3 machines regardless of amps).

Operating Engineer- Heavy & Highway, Sewer (includes cleaning, lining & rehab), Water & Tunnel

Per hour:	07/01/2023
Class A	$ 42.64
Class B	38.14
Crane 5 to 60 tons	45.64
" 61 to 199 tons	46.14
" 200 to 399 tons	46.64
" 400 and over	47.14

Additional $2.50/hr. for Hazardous Work Site
Additional $1.00/hr. for Tunnel Work
Additional $4.00/hr. for Agency Mandated Off-Shift Work

SUPPLEMENTAL BENEFITS
Per hour:

Journeymen	$ 34.86*

*Note: For Overtime Hours $26.41 of the amount paid at straight time, the remaining balance of 8.45 is paid at the same premium as the wage.

OVERTIME PAY
See (B, E, Q, W) on OVERTIME PAGE

HOLIDAY
Paid: See (*5, **6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
*Saturday Holidays will be recognized on the Friday before
**Sunday Holidays will be recognized on the Monday after

REGISTERED APPRENTICES
Wages per hour:
Apprentices at 1 year terms

1st	2nd	3rd	4th
$35.14	$36.14	$37.14	$38.14

Supplemental Benefits

All Apprentices $ 34.46*

*Note: For Overtime Hours $26.41 of the amount paid at straight time, the remaining balance of $8.05 is paid at same premium as the wage.

12-17 hh/sw/t

Operating Engineer - Survey Crew 04/01/2024

JOB DESCRIPTION Operating Engineer - Survey Crew **DISTRICT** 12

ENTIRE COUNTIES
Cattaraugus, Chautauqua, Erie, Niagara, Orleans, Wyoming

PARTIAL COUNTIES
Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES
These rates apply to Building, Heavy and Highway Construction.

Per hour:
SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.
Instrument Person - One who operates the surveying instruments.
Rod Person - One who holds the rods and assists the Instrument Person.

	07/01/2023
Party Chief	$ 47.72
Instrument Person	45.03
Rod Person	31.37

Additional $3.00 per hr. for work in a Tunnel.
Additional $2.50 per hr. for EPA or DEC certified toxic or hazardous waste work.

SUPPLEMENTAL BENEFITS
Per hour worked:

Journeyman $ 29.95

OVERTIME PAY
See (B, E, Q, *V, X) on OVERTIME PAGE
*Note: $24.25 Only for "ALL" premium hours paid.

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES:1000 hour terms based on the Percentage of Rod Person wage:

	07/01/2023
0-1000 Hrs	60%
1001-2000 Hrs	70%
2001-3000 Hrs	80%

SUPPLEMENTAL BENEFITS per hour worked:

0-1000 Hrs	$ 17.97 / PHP $14.55
1001-2000 Hrs	20.97 / 16.98
2001-3000 Hrs	23.96 / 19.40

NOTE: PHP is premium hours paid when worked.

12-17D Sur

Operating Engineer - Survey Crew - Consulting Engineer 04/01/2024

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 12

ENTIRE COUNTIES
Cattaraugus, Chautauqua, Erie, Niagara, Orleans, Wyoming

PARTIAL COUNTIES
Genesee: Only that portion of the county that lies west of a line down the center of Route 98 excluding that area that lies within the City of Batavia.

WAGES
These rates apply to feasibility and preliminary design surveying, line of grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour:
SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.
Instrument Person - One who operates the surveying instruments.
Rod Person - One who holds the rods and assists the Instrument Person.

	07/01/2023
Party Chief	$ 47.22
Instrument Person	45.03
Rod Person	31.37

SUPPLEMENTAL BENEFITS
Per hour worked:

Journeyman	$ 29.95

OVERTIME PAY
See (B, E, Q, *V, X) on OVERTIME PAGE
*Note: $24.25 Only for "ALL" premium hours paid.

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES: 1000 hour terms based on the Percentage of Rod Persons Wage:

	07/01/2023
0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFITS per hour worked:

0-1000	$ 18.72 / PHP $14.55
1001-2000	21.50 / " 16.98
2001-3000	24.27 / " 19.40

NOTE: PHP is premium hours paid.

12-17D Con Eng

Painter — 04/01/2024

JOB DESCRIPTION Painter **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Erie, Genesee, Niagara, Orleans, Wyoming

PARTIAL COUNTIES
Cattaraugus: Entire County except the Townships of Conewango, Leon, Napoli, New Albion, Randolph and South Valley.
Chautauqua: Only the Townships of Awkright, Dunkirk, Hanover, Pomfret, Portland, Sheridan and Villenova.
Livingston: Only the Townships of North Dansville, Nunda, Ossian,Portage, Sparta, Spring Water and West Sparta.
Steuben: Only the Townships of Avoca, Canisteo, Cohocton, Dansville,Fremont, Greenwood, Hartsville, Hornellsville, Howard, Jasper, Prattsburg, Pulteney, Troupsburg, Tuscarora, Urbana, Wayland, Wayne, Woodhull, West Union, Wheeler, and the City of Hornell.

WAGES
Per hour: 07/01/2023

Basic Rate (Brush & Roll)	$ 30.37
Spray painting, wallcovering	30.37
Abrasive and hydroblasting	30.37
Taping/DryWall Finisher	31.61

Skeleton Steel*	31.12

* Skeleton Steel: No floors, walls or ceiling are constructed, including radio and television towers, flagpoles, smokestacks, cranes and the abatement of coatings with lead, asbestos and/or arsenic, etc. All work within the confines of a plant shall be paid the skeleton steel rate (except in-plant tank work (see Tank Rate)).

NOTE The Employer Registration (30.1) use of a '4 Day/10 Hour Work schedules' will no longer be accepted or processed. All registered projects prior to June 30,2023 will expire within the granted time frame.

For Pre-Registered Projects Four (4), Ten (10) hour days may be worked at straight time during a week, Monday thru Thursday. Friday may be used as a make-up day. Tuesday thru Friday may be worked with no make-up day. For further clarification contact your local Bureau Office.

SUPPLEMENTAL BENEFITS
Per hour:

	$ 27.28
Taping/Drywall Finisher	$ 26.94

OVERTIME PAY
Exterior work only See (B, E4, F*, R) on OVERTIME PAGE.
All other work See (B, F*, R) on OVERTIME PAGE.
* Note - Saturday is payable at straight time if the employee misses work, except where a doctor's or hospital verification of illness is produced Monday through Friday when work was available to the employee.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Painter/Decorator: 750 hour terms at the following percentage of Journeyman's Basic wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 18.00	$ 19.00	$ 20.00	$ 21.00	$ 22.00	$ 23.00	$ 24.00	$ 25.00

Taper/Drywall Finisher: 750 hour terms at the following percentage of Journeyman's Taper wage:

1st	2nd	3rd	4th	5th	6th
$ 20.00	$ 21.00	$ 22.00	$ 23.00	$ 24.00	$ 25.00

Supplemental benefits per hour:

Painter/Decorator and Taper/Drywall Finisher:

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 3.35	$ 5.35	$ 6.35	$ 6.85	$ 7.35	$ 7.85	$ 8.35	$ 8.60

3-4-Buf, Nia, Olean

Painter 04/01/2024

JOB DESCRIPTION Painter **DISTRICT** 3

ENTIRE COUNTIES
Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Cortland, Delaware, Erie, Genesee, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Wayne, Wyoming, Yates

WAGES
Per hour: 07/01/2023

Bridge	$ 42.06
Tunnel	42.06
Tank*	40.06

For Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

Tank rate applies to indoor and outdoor tanks, tank towers, standpipes, digesters, waste water treatment tanks, chlorinator tanks, etc. Covers all types of tanks including but not limited to steel tanks, concrete tanks, fiberglass tanks, etc.

Note an additional $1.50 per hour is required when the contracting agency or project specification requires any shift to start prior to 6:00am or after 12:00 noon.

SUPPLEMENTAL BENEFITS
Per hour:

$ 30.89

OVERTIME PAY
Exterior work only See (B, E4, F*, R) on OVERTIME PAGE.
All other work See (B, F*, R) on OVERTIME PAGE.
*Note - Saturday is payable at straight time if the employee misses work, except where a doctor's or hospital verification of illness is produced Monday through Friday when work was available to the employee.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following percentage of Journeyman's wage rate:

1st	2nd	3rd	4th	5th	6th
$ 24.00	$ 26.00	$ 28.00	$ 30.00	$ 34.00	$ 38.00

Supplemental benefits per hour:

1st	2nd	3rd	4th	5th	6th
$ 6.60	$ 6.95	$ 7.30	$ 7.65	$ 8.00	$ 8.35

3-4-Bridge, Tunnel, Tank

Painter - Metal Polisher — 04/01/2024

JOB DESCRIPTION Painter - Metal Polisher **DISTRICT** 8

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2023
Metal Polisher	$ 38.18
Metal Polisher*	39.28
Metal Polisher**	42.18

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS
Per Hour: 07/01/2023

Journeyworker:
All classification $ 12.34

OVERTIME PAY
See (B, E, P, T) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year term at the following wage rates:

	07/01/2023
1st year	$ 16.00
2nd year	17.00
3rd year	18.00
1st year*	$ 16.39
2nd year*	17.44
3rd year*	18.54
1st year**	$ 18.50
2nd year**	19.50
3rd year**	20.50

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
Per hour:

1st year	$ 8.69
2nd year	8.69
3rd year	8.69

8-8A/28A-MP

Plumber — 04/01/2024

JOB DESCRIPTION Plumber **DISTRICT** 3

ENTIRE COUNTIES
Cattaraugus, Chautauqua, Erie, Niagara, Wyoming

PARTIAL COUNTIES
Allegany: Only the Townships of Allen, Alma, Amity, Angelica, Belfast, Bolivar, Caneadea, Centerville, Clarksville, Cuba, Genesee, Friendship, Granger, Hume, New Hudson, Rushford, Wirt and that portion of Scio which lies west of Rt. 19.
Genesee: Only the Townships of Alabama, Alexander, Batavia, Darien, Elba, Oakfield, Pembroke and the City of Batavia.
Orleans: Only the Townships of Ridgeway, Shelby and Yates.

WAGES
Per hour: 07/01/2023

Plumber	$ 40.10
Steamfitter	$ 40.10

Note - Add 10% (ten percent) to wage when HAZMAT training is required or when OSHA compliant respirator protection is required.

SUPPLEMENTAL BENEFITS
Per hour:

$ 28.64

Note - $4.88 of this amount must be paid at the same premium as the wage.

OVERTIME PAY
See (*B, **E, Q) on OVERTIME PAGE
* Double time after 11 hours per day on Weekdays.
** Double time after 10 hours per day on Saturday.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One year terms at the following percentage of Journeyman's wage:

1st	2nd	3rd	4th	5th
50%	60%	70%	75%	90%

Note - Add 10% (ten-percent) to wage when HAZMAT training is required or when OSHA compliant respirator protection is required.

Supplemental benefits per hour:

$ 23.77

Note - $4.88 of this amount must be paid at the same premium as the wage.

3-22-P

Roofer — 04/01/2024

JOB DESCRIPTION Roofer **DISTRICT** 3

ENTIRE COUNTIES
Erie, Genesee, Niagara, Orleans, Wyoming

WAGES
Per hour: 07/01/2023

Asbestos Removal	$ 35.96
Slate, Tile	33.11
Precast tile / slabs	33.11

Crete / gypsum planks	33.11
Damp and waterproofer	32.96
Composition, sprayers,	32.96
Asphalt mastic,	32.96
Steep roofers	32.96

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:
15.0% for work from 4:30PM - 1:00AM or second shift
20.0% for work from 12:30AM - 9:00AM or third shift

SUPPLEMENTAL BENEFITS
Per hour:

$ 26.01

OVERTIME PAY
See (B, *E, **E2, Q) on OVERTIME PAGE
* and ** Double time after 8 hours on Saturday.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

Hour terms at the following percentage of Journeyman's wage:

0 to 999	to 1499	to 1999	to 2499	to 2999	to 3499	to 4499
65%	70%	75%	80%	85%	90%	95%

Supplemental benefits per hour:

0 to 999	to 1499	to 1999	to 2499	to 2999	to 3499	to 4499
$ 10.86	$ 15.04	$ 15.29	$ 23.12	$ 23.84	$ 24.56	$ 25.29

Sheetmetal Worker — 04/01/2024

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 3

ENTIRE COUNTIES
Erie, Genesee, Niagara, Orleans, Wyoming

WAGES
Per hour: 07/01/2023

Sheet Metal Worker	$ 38.50

Additional $0.50 per hour for work more than 30" above floor on boatswain chair.
Additional $1.00 per hour for work in "Hot" areas of atomic laboratories, atomic plants, or any premises where radio-active materials are stored or handled and personal protective equipment is required.
Additional $1.00 per hour for work when required to have 40-hour HAZMAT training or the use of OSHA compliant respirator is required.

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply:
Shift Premium per hour:

Second Shift	$ 3.25
Third Shift	$ 5.00

SUPPLEMENTAL BENEFITS
Per hour:

$ 28.35*

* Note - $18.17 of this amount must be paid at the same premium as the wages per overtime hours.

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One year terms at the following wage:

1st term	$ 20.18

2nd term	24.67	
3rd term	27.28	
4th term	28.88	
5th term	32.09	

Supplemental benefits per hour:

1st term	$ 17.38	Note - $8.20 of this amount must be paid at the same premium as the wage.
2nd term	21.24	Note - $12.06 of this amount must be paid at the same premium as the wage.
3rd term	26.10	Note - $15.92 of this amount must be paid at the same premium as the wage.
4th term	26.42	Note - $16.24 of this amount must be paid at the same premium as the wage.
5th term	27.06	Note - $16.88 of this amount must be paid at the same premium as the wage.

When shift work is mandated either in the job specification or by the contracting agency the following premiums apply;
Shift Premium per hour:

Second Shift

1st term	$ 1.46
2nd term	$ 1.63
3rd term	$ 1.79
4th term	$ 2.28
5th term	$ 2.60

Third Shift

1st term	$ 2.25
2nd term	$ 2.50
3rd term	$ 2.75
4th term	$ 3.50
5th term	$ 4.00

3-71

Sprinkler Fitter — 04/01/2024

JOB DESCRIPTION Sprinkler Fitter **DISTRICT** 1

ENTIRE COUNTIES
Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Washington, Wayne, Wyoming, Yates

WAGES
Per hour 07/01/2023

Sprinkler Fitter $ 40.04

SUPPLEMENTAL BENEFITS
Per hour

Journeyperson $ 28.24

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES
Wages per hour

One Half Year terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 19.15	$ 21.28	$ 23.16	$ 25.29	$ 27.41	$ 29.54	$ 31.67	$ 33.80	$ 35.93	$ 38.05

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th

$ 8.74	$ 8.74	$ 20.32	$ 20.32	$ 20.57	$ 20.57	$ 20.57	$ 20.57	$ 20.57	$ 20.57

1-669

Teamster - Building / Heavy&Highway **04/01/2024**

JOB DESCRIPTION Teamster - Building / Heavy&Highway **DISTRICT** 3

ENTIRE COUNTIES
Erie, Niagara

PARTIAL COUNTIES
Genesee: Only in the Townships of Alabama, Darien and Pembroke.
Orleans: Only the Townships of Ridgeway, Shelby and Yates.
Wyoming: Only in the Townships of Arcade, Bennington, Java and Sheldon.

WAGES
GROUP 1: Warehousemen, Yardmen, Truck Helpers, Pickups, Panel Trucks, Flatboy Material Trucks (straight jobs), Single Axle Dump Trucks, Dumpsters, Material Checkers and Receivers, Greasers, Truck Tiremen, Mechanics Helpers and Parts Chasers.

GROUP 2: Tandems and Batch Trucks, Mechanics, Dispatcher.

GROUP 3: Semi-Trailers, Low-Boy Trucks, Asphalt Distributor Trucks and Agitator, Mixer Trucks and dumpcrete type vehicles, Truck Mechanic, Fuel Trucks

GROUP 4: Specialized Earth Moving Equipment, Euclid type, or similar off-highway, where not self-loading, Straddle (Ross) Carrier, and self -contained concrete mobile truck.

GROUP 5: Off-highway Tandem Back-Dump, Twin Engine Equipment and Double-Hitched Equipment where not self-loading.

Per hour:	07/01/2023
All GROUPS	$ 44.48

Add $2.00 when required to use personal protection when performing hazardous waste removal work.
An additional $3.00 per hour is required when a single irregular work shift starting any time from 5:00PM to 1:00AM is mandated either in the job specification or by the contracting agency.

SUPPLEMENTAL BENEFITS
Per hour:
$ 16.71*
*Note - Only $ 8.16 per hour needs to be paid for overtime hours.

OVERTIME PAY
See (B, G, P) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

3-449

Teamster - Building / Heavy&Highway **04/01/2024**

JOB DESCRIPTION Teamster - Building / Heavy&Highway **DISTRICT** 3

ENTIRE COUNTIES
Erie, Niagara

WAGES

Per hour:	07/01/2023
Dump Truck Operator*	$ 28.50

*Does not include Single Axle Dump Trucks (see Teamster Group 1).
*Does not include Off-highway Dump Trucks (see Teamster Groups 2-5).

SUPPLEMENTAL BENEFITS
Per hour:
$ 2.02

OVERTIME PAY
See (B, B2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

3-449d-DT

Welder **04/01/2024**

JOB DESCRIPTION Welder **DISTRICT** 1

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour 07/01/2023

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

(AA)	Time and one half of the hourly rate after 7 and one half hours per day
(A)	Time and one half of the hourly rate after 7 hours per day
(B)	Time and one half of the hourly rate after 8 hours per day
(B1)	Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday. Double the hourly rate for all additional hours
(B2)	Time and one half of the hourly rate after 40 hours per week
(C)	Double the hourly rate after 7 hours per day
(C1)	Double the hourly rate after 7 and one half hours per day
(D)	Double the hourly rate after 8 hours per day
(D1)	Double the hourly rate after 9 hours per day
(E)	Time and one half of the hourly rate on Saturday
(E1)	Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
(E2)	Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E3)	Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
(E4)	Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E5)	Double time after 8 hours on Saturdays
(F)	Time and one half of the hourly rate on Saturday and Sunday
(G)	Time and one half of the hourly rate on Saturday and Holidays
(H)	Time and one half of the hourly rate on Saturday, Sunday, and Holidays
(I)	Time and one half of the hourly rate on Sunday
(J)	Time and one half of the hourly rate on Sunday and Holidays
(K)	Time and one half of the hourly rate on Holidays
(L)	Double the hourly rate on Saturday
(M)	Double the hourly rate on Saturday and Sunday
(N)	Double the hourly rate on Saturday and Holidays
(O)	Double the hourly rate on Saturday, Sunday, and Holidays
(P)	Double the hourly rate on Sunday
(Q)	Double the hourly rate on Sunday and Holidays
(R)	Double the hourly rate on Holidays
(S)	Two and one half times the hourly rate for Holidays

(S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.

(T) Triple the hourly rate for Holidays

(U) Four times the hourly rate for Holidays

(V) Including benefits at SAME PREMIUM as shown for overtime

(W) Time and one half for benefits on all overtime hours.

(X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

(1)	None
(2)	Labor Day
(3)	Memorial Day and Labor Day
(4)	Memorial Day and July 4th
(5)	Memorial Day, July 4th, and Labor Day
(6)	New Year's, Thanksgiving, and Christmas
(7)	Lincoln's Birthday, Washington's Birthday, and Veterans Day
(8)	Good Friday
(9)	Lincoln's Birthday
(10)	Washington's Birthday
(11)	Columbus Day
(12)	Election Day
(13)	Presidential Election Day
(14)	1/2 Day on Presidential Election Day
(15)	Veterans Day
(16)	Day after Thanksgiving
(17)	July 4th
(18)	1/2 Day before Christmas
(19)	1/2 Day before New Years
(20)	Thanksgiving
(21)	New Year's Day
(22)	Christmas
(23)	Day before Christmas
(24)	Day before New Year's
(25)	Presidents' Day
(26)	Martin Luther King, Jr. Day
(27)	Memorial Day
(28)	Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12226

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By: (Check Only One) ☐ Contracting Agency ☐ Architect or Engineering Firm ☐ Public Work District Office Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone Fax

E-Mail:

2. NY State Units (see Item 5).

- ☐ 01 DOT
- ☐ 02 OGS
- ☐ 03 Dormitory Authority
- ☐ 04 State University Construction Fund
- ☐ 05 Mental Hygiene Facilities Corp.
- ☐ 06 OTHER N.Y. STATE UNIT
- ☐ 07 City
- ☐ 08 Local School District
- ☐ 09 Special Local District, i.e., Fire, Sewer, Water District
- ☐ 1O Village
- ☐ 11 Town
- ☐ 12 County
- ☐ 13 Other Non-N.Y. State (Describe)

3. SEND REPLY TO ☐ (check if new or change)
Name and complete address:

Telephone Fax

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

_____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Fuel Delivery
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Does this project comply with the Wicks Law involving separate bidding? YES ☐ NO ☐

10. Name and Title of Requester

Signature

SEE PAGE TWO FOR LAWS RELATING TO PUBLIC WORK CONTRACTS

NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED ANY PUBLIC WORK CONTRACT

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: https://apps.labor.ny.gov/EDList/searchPage.do

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 04/23/2024

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTION	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	NYC		CHARLES ZAHRADKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025

NYSDOL Bureau of Public Work Debarment List 04/23/2024

Article 8

DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL		CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DAVID FRIEDLANDER		64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL	*****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA	*****0213	GORILLA CONTRACTING GROUP, LLC		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
DOL	DOL	*****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028

NYSDOL Bureau of Public Work Debarment List 04/23/2024

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DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028

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DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025

DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTION, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024

DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL	*****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	DOL	*****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	*****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	*****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028

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DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	*****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

NAME OF BIDDER

BID SUBMITTED BY: _____

PROPOSAL FOR:

GENERAL CONSTRUCTION WORK

Buffalo Convention Center – Interior Renovations
1 Convention Center Plaza

TO: **William E. Geary,** Commissioner of Public Works
Erie County Department of Public Works
Rath Building, 95 Franklin Street, Suite 1400, Buffalo, NY 14202

Commissioner Geary:

Pursuant to and in compliance with your advertisement for Bids, the undersigned offers to furnish all materials and all plant, labor, supplies, equipment, transportation and other facilities necessary or proper for, or incidental to the construction work, as required by and in strict accord with the contract documents dated 04/29/2024 entitled: *"Buffalo Convention Center Ballroom Renovations"* including all Addenda for the following sum of:

BASE BID:

_____

/100 DOLLARS ($)

_____

Completion: We agree to complete this work within _____ calendar days from the Notice to Proceed.

CAUTION: Be advised that Erie County Local Law No. 3-2018 will be enforced. All bidders submitting bids with a value in excess of $250,000 must adhere to the provisions detailed within this Proposal and Section 10 of the General Conditions. For consideration, bidders must (1) check the appropriate box and (2) enclose the corresponding paperwork.

CAUTION: ERIE COUNTY EXECUTIVE ORDER #18: The project contemplated by these Bid Specifications may be subject to Erie County Executive Order #18 ("EO #18") which is included along with its Rules and Regulations for reference in Appendix "D" to the General Conditions of this Bid. All bids with a value that meets or exceeds $250,000 must include a verified attestation of intent to comply and statement of work force. Such attestation and statement is attached hereto. Any bids received which do not include such attestation or include an incomplete attestation will be deemed non-compliant and will not be considered for award. Should it be determined that the project is subject to EO #18, Contractor must provide county with a fully executed and verified Local and Disadvantaged Worker Compliance Certification prior to final execution of an award agreement.

CAUTION: All compliance reporting required for Erie County Local Law No. 3-2018 and Executive Order #18 shall now be completed via LCPtracker. The County will be available to assist with any reasonable training requests and support, as necessary.

NOTE: Lump-Sum Allowances are to include an Overhead and Profit (O&P) Margin. Unit-Price Allowances are NOT to include an O&P Margin. O&P for unit prices are to be included in the unit price. See Specification 012100 – Allowances for more information.

NOTE: As of April 6, 2021 the County of Erie is requiring a new experience questionnaire form. Please reference Section 5 of the Information to Bidders included within the project manual for detailed information.

SUMMARY OF WORKFORCE, MINORITY/WOMEN BUSINESS, & DISABLED VETERANS BUSINESS COMMITMENT

Requirement	Applicable when Contract value meets or exceeds:	Reference
Erie County Executive Order No.18	$250,000	General Conditions Section 8.08
New York State Certified Apprenticeship Training Program	$250,000	General Conditions Section 10
Minority/ Women Business Enterprise & Disabled Veterans Business	$100,000	General Conditions Section 8.06
General Minority and Women Workforce Goals	All Contracts	General Conditions Section 8.05
Equal Pay Certification	All Contracts	General Conditions Sections 8.04 & 8.07

***Refer to Supplemental General Conditions for any modifications to the above**

ALTERNATE BIDS

The undersigned further proposes and agrees that if any or all of the following alternates are accepted and included in the contract, the total amount of the contract as heretofore stated shall be accordingly increased, or decreased, as the case may be. All materials and workmanship shall be in strict accordance with specifications and drawings.
The Owner, as a term and condition of Bid, reserves the right to either accept or reject any or all of the alternates appearing below. Pursuant to the Owner's right of acceptance or rejection, the Contractor submitting this Proposal hereby agrees that he will hold all of the alternate prices appearing below for the duration of the contract.

A. Alternate Bid Alt.-1: Omit modification of framing required for installation of fixture LF-6, as shown in Detail 2/A-110.

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

B. Alternate Bid Alt.-2: Remove existing textured wall covering at east wall. Patch and paint gypsum substrate. Finish color to be PT-1 as indicated on Sheet A-800.

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

C. Alternate Bid Alt.-3: Remove gypsum wall board and framing at underside of coffered ceiling. Remove gypsum board and angled framing to a point 11 inches above existing lowest ceiling surface. Provide wood blocking at remaining metal framing and attach gypsum board at modified height.

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

D. Alternate Bid Alt.-4: Remove existing textured wall covering and wood chair rail at east wall as shown on Sheet AD-100. Construct additional metal-stud partitions and furring around structural steel columns located near the east wall of Room 101. Provide tile backer and porcelain wall tile FLT1 as indicated on Sheet A-801 and specified in Section 093013 "Ceramic Tiling". Provide porcelain floor tile FLT1 to extent shown on Sheet A-801 and specified in Section 093013 "Ceramic Tiling".

ADD _____

_____ **/100 DOLLARS ($** _____ **)**

Completion in Calendar Days: _____

SUBSTITUTIONS

If awarded a contract based on the above proposal, we will use materials and equipment specified with the following exceptions:

ITEMS	**MANUFACTURER'S NAME AND PRODUCT DESCRIPTION**

It is understood that if any of the above proposed substitutions are not accepted by the Owner, we will furnish the product named in the specifications. Substitutions are not permitted after the award of contract.

ADDENDA:

The foregoing proposal covers the following Addenda:

(Here list, by number, each addendum issued prior to bidding.)

_____

_____

_____

NON-COLLUSIVE BIDDING CERTIFICATE.

1. By submission of this bid, the bidder and each person signing on behalf of the 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 its knowledge and belief:

   a. The prices in this bid have been arrived at independently with no 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; and
   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 a bid for the purpose of restricting competition; and
   d. If the bidder is a corporation, this certificate is and shall be deemed to have been authorized by the board of directors of the bidder, and such authorization is and shall be deemed to include the signing and submission of the bid and the inclusion therein of this certificate of non-collusion as the act and deed of the corporation.

2. Pursuant to 103-d, General Municipal Law, a bid shall not be considered for award nor shall any award be made where the above Non-Collusive Certificate, Paragraphs 1, (A), (B), (C), and (D) have not been complied with, unless explained, justified and legally excused in accordance with said law.

This proposal and/or contract shall be governed by New York State Law.

The undersigned agrees together into a contract for the above stated compensation, under the terms and conditions outlined, plus any other conditions mutually agreed upon.

NAME OF FIRM: Federal Tax ID No.:

AUTHORIZED SIGNATURE:

PRINTED OR TYPEWRITTEN
NAME OF SIGNATORY:

TITLE:

ADDRESS:

PHONE No.: FAX No.:

EMAIL ADDRESS:

DATE:

SEAL IF BIDDER
IS A CORPORATION

To facilitate correct drawing and execution of contract, Bidders shall supply full information concerning legal status as follows:

NAME: _____

CORPORATION CO-PARTNERSHIP AN INDIVIDUAL TRADE
(Strike out classification not applicable.)

ADDRESS OF PRINCIPAL OFFICE:

Street: _____

City: _____

State: _____

LOCAL BRANCH OFFICE ADDRESS:

_____

INCORPORATED UNDER THE LAWS OF THE STATE OF: _____

If Foreign Corporation, state if authorized to do business in the State of New York: (YES) (NO)

If Co-Partnership, Names of Partners and Addresses are:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

If doing business under Trade Name, Assumed Name or Firm Style:

Name of Owner: _____

Certificate Filed: _____ _____

(Place) (Date)

NEW YORK STATE CERTIFIED APPRENTICESHIP TRAINING PROGRAM CERTIFICATION

Pursuant to Erie County Local Law 3-2018 the following MUST be submitted along with supporting documentation unless the Contracting Agency has otherwise determined under Section 2f of the Erie County Rules and Regulations that the New York State Certified Apprenticeship Training Program does not apply.

TO BE FILLED OUT BY BIDDER: please check that which applies on sign below.

[ ] Enclosed is a copy of the certification of approval of the New York State Certified Apprenticeship Training Program (NYSCATP) by the New York State Department of Labor which, as Bidder, will use in connection with the construction contract. Also Enclosed is a written plan demonstrating how apprentices will be utilized by the Bidder As Prime Contractor or by the Subcontractor(s) to the Bidder as Prime Contractor. Such Plan shall include at a minimum:

Please check all items i through vi to acknowledge compliance:

- [ ] i. An organized written plan in place that embodies the terms and conditions of employment, training and supervision of one or more apprentices;
- [ ] ii. A schedule of wages to be paid to the apprentices consistent with the skills required and approved by the New York State Department of Labor;
- [ ] iii. Equal employment and affirmative action plans;
- [ ] iv. Workforce development and diversification goals to ensure that the contractor will diligently work toward a minority workforce goal of 30% minority and female participation combined in project personnel including trades people, trainees, journeymen, apprentices and supervisory staff;
- [ ] v. A minimum of ten percent (10%) of the total construction workers. Trades people, trainees, journeymen, and apprentices employed at any given time on a particular project by any and all contractors or subcontractors must be consist of persons participating in a NYSCATP; and
- [ ] vi. In all cases, such Certified Apprenticeship Training Program must be specific to the type and scope of work which is being performed and must have a graduation rate of at least thirty percent (30%) as determined by the New York State Department of Labor.

[ ] Enclosed is a detailed explanatory written statement as to the inapplicability of Apprenticeship participation due to: the lack of career opportunities in NYSCATP Approved by New York State Department of Labor Commissioner; OR the magnitude of the construction contract which would make use of apprentices impracticable.

_____	_____	_____
SIGNATURE	*COMPANY NAME*	*DATE*

CONTRACTOR'S OWN WORKFORCE

(This form must be submitted with the Contractor's bid proposal)

Pursuant to Section 3.18 – Contractor's Own Workforce, of the General Conditions, the Contractor submitting a bid proposal acknowledges that they will perform a minimum of 25% of the work with their own workforce as follows:

Task	Value of Work
Total Value of Workforce	
Percentage of Total Bid	%

SIGNATURE *COMPANY NAME* *DATE*

Erie County Equal Pay Certification

In order to comply with Executive Order 13 dated November 6, 2014, we hereby certify that we are in compliance with federal law, including the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, Federal Executive Order 11246 of September 24, 1965 and New York State Labor Law Section 194 (together "Equal Pay Law"). We understand that this certification is a material component of this contract. Violation of the provisions of Executive Order 13, which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

We have evaluated wages and benefits to ensure compliance with the Equal Pay Law. We certify that we have not been the subject of an adverse finding under the Equal Pay Law within the previous five years and, in the alternative, if we were the subject of an adverse finding under the Equal Pay Law within the previous five years, we have annexed a detailed description of the finding(s). In addition, we have annexed a detailed description of any currently pending claims under the Equal Pay Law in which we are involved.

_____
Signature

Verification

A) OWNER/PARTNERSHIP

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states he or she is the owner of (or a partner in) _____, and is making the foregoing Certification and that the statements and representations made in the Certification are true to his or her own knowledge.

Sworn to before me this _____Day of _____, 20__

_____
Notary

B) CORPORATE

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states that he or she is the
Name of Corporate Officer
_____, of_____,
Title of Corporate Officer Name of Corporation
the enterprise making the foregoing Certification, that he or she has read the Certification and knows its contents, that the statements and representations made in the Certification are true to his or her own knowledge, and that the Certification is made at the direction of the Board of Directors of the Corporation.
Sworn to before me this _____Day of _____, 20__

_____
Notary

ERIE COUNTY EXECUTIVE ORDER #18
ATTESTATION AND
STATEMENT OF WORKFORCE

We hereby attest that we have read and understand Erie County Executive Order #18 ("EO #18"). We acknowledge that the project we are bidding on may be subject to the provisions thereof. We further attest that, should we be identified as the successful bidder and should the appropriate individual or entity determine that this project is subject to EO #18, we will be in compliance with such Order, or we will have been granted a partial waiver by the Erie County Office of Equal Employment Opportunity prior to starting work on the project.

We further acknowledge that in order for Erie County to determine if the project we are bidding on is subject to EO #18, they need to analyze the workforce that we intend to use on such project. We therefore now do attest that it is our current intention to use _____#___ construction workers, which number includes any subcontracted construction workers, on this project should it be awarded to us. For purposes of this attestation we understand that construction worker shall mean a laborer, workman, or mechanic who is directly involved in the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise providing for any building, facility, roads, highways, bridges, or physical structure of any kind, but does not include professional services employees.

_____
Signature

Verification

STATE OF NEW YORK)
COUNTY OF ERIE) SS:

A)
_____, being duly sworn, states he or she is the owner of (or partner in) _____, and is making the foregoing Attestation and Statement of Workforce and that such representations made are true to his or her own knowledge.

B)
_____, being duly sworn, states that he or she is the (Name of Corporate Officer) _____, of (Name of Corporation or Enterprise)_____, that he or she has read the Attestation and Statement of Workforce and that such representations made are true to his or her knowledge, and are made at the direction of the Board of Directors of the Corporation.

Sworn to before me this _____ _____
Day of _____. 20_____ Notary Public

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

ACKNOWLEDGMENT OF DRUG AND ALCOHOL TESTING COMPLIANCE

_____hereby acknowledges that a drug
(PRINT OR TYPE COMPANY NAME)
and alcohol program, which is required by Federal Department of Transportation rules (CFR, Title 49, Part 40 and 382), has been implemented by this Company. The program is administered by:

(PLEASE SELECT ONE)

( ) The Company itself - The program administrator is:

_____
(Company Administrator's Name and Telephone Number)

( ) Third - Party Administrator - The program administrator is:

_____
(Third - Party Administrator's Name)

_____
(Address)

_____
(Contact Person/Telephone)

_____
(Company's Official's Name)

_____
(Signature)

_____
(Date)

Subscribed to before me on

_____, day of _____ 20___

_____
Notary Public

Due to the safety-sensitive nature of the work which your Commercial Driver Licensed (CDL) employees may perform on this project, you are required to implement a drug and alcohol testing program which follows Federal Department of Transportation rules (CFR, Title 49, Parts 40 and 382). Further, as a condition of your contract, you must also submit proof of your compliance via this form to the Erie County Department of Public Works, office of the Commissioner.

This form must be signed and returned to the Commissioner of Public Works, 14th Floor, Rath Building, 95 Franklin Street, Buffalo, NY, no later than three (3) working days after the bid opening.

NAME OF BIDDER

BID SUBMITTED BY: _____

PROPOSAL FOR:

PLUMBING/FIRE PROTECTION CONSTRUCTION WORK

Buffalo Convention Center – Interior Renovations
1 Convention Center Plaza

TO: **William E. Geary,** Commissioner of Public Works
Erie County Department of Public Works
Rath Building, 95 Franklin Street, Suite 1400, Buffalo, NY 14202

Commissioner Geary:

Pursuant to and in compliance with your advertisement for Bids, the undersigned offers to furnish all materials and all plant, labor, supplies, equipment, transportation and other facilities necessary or proper for, or incidental to the construction work, as required by and in strict accord with the contract documents dated 04/29/2024 entitled: *"Buffalo Convention Center Ballroom Renovations"* including all Addenda for the following sum of:

BASE BID:

_____

/100 DOLLARS ($)

_____

Completion: We agree to complete this work within _____ calendar days from the Notice to Proceed.

CAUTION: Be advised that Erie County Local Law No. 3-2018 will be enforced. All bidders submitting bids with a value in excess of $250,000 must adhere to the provisions detailed within this Proposal and Section 10 of the General Conditions. For consideration, bidders must (1) check the appropriate box and (2) enclose the corresponding paperwork.

CAUTION: ERIE COUNTY EXECUTIVE ORDER #18: The project contemplated by these Bid Specifications may be subject to Erie County Executive Order #18 ("EO #18") which is included along with its Rules and Regulations for reference in Appendix "D" to the General Conditions of this Bid. All bids with a value that meets or exceeds $250,000 must include a verified attestation of intent to comply and statement of work force. Such attestation and statement is attached hereto. Any bids received which do not include such attestation or include an incomplete attestation will be deemed non-compliant and will not be considered for award. Should it be determined that the project is subject to EO #18, Contractor must provide county with a fully executed and verified Local and Disadvantaged Worker Compliance Certification prior to final execution of an award agreement.

CAUTION: All compliance reporting required for Erie County Local Law No. 3-2018 and Executive Order #18 shall now be completed via LCPtracker. The County will be available to assist with any reasonable training requests and support, as necessary.

NOTE: Lump-Sum Allowances are to include an Overhead and Profit (O&P) Margin. Unit-Price Allowances are NOT to include an O&P Margin. O&P for unit prices are to be included in the unit price. See Specification 012100 – Allowances for more information.

NOTE: As of April 6, 2021 the County of Erie is requiring a new experience questionnaire form. Please reference Section 5 of the Information to Bidders included within the project manual for detailed information.

SUMMARY OF WORKFORCE, MINORITY/WOMEN BUSINESS, & DISABLED VETERANS BUSINESS COMMITMENT

Requirement	Applicable when Contract value meets or exceeds:	Reference
Erie County Executive Order No.18	$250,000	General Conditions Section 8.08
New York State Certified Apprenticeship Training Program	$250,000	General Conditions Section 10
Minority/ Women Business Enterprise & Disabled Veterans Business	$100,000	General Conditions Section 8.06
General Minority and Women Workforce Goals	All Contracts	General Conditions Section 8.05
Equal Pay Certification	All Contracts	General Conditions Sections 8.04 & 8.07

***Refer to Supplemental General Conditions for any modifications to the above**

ALTERNATE BIDS

A. **Alternate Bid Alt.-1:** No work associated with Plumbing/Fire Protection Contract.

B. **Alternate Bid Alt.-2:** No work associated with Plumbing/Fire Protection Contract.

C. **Alternate Bid Alt.-3:** No work associated with Plumbing/Fire Protection Contract.

D. **Alternate Bid Alt.-4:** No work associated with Plumbing/Fire Protection Contract.

SUBSTITUTIONS

If awarded a contract based on the above proposal, we will use materials and equipment specified with the following exceptions:

ITEMS	MANUFACTURER'S NAME AND PRODUCT DESCRIPTION

It is understood that if any of the above proposed substitutions are not accepted by the Owner, we will furnish the product named in the specifications. Substitutions are not permitted after the award of contract.

ADDENDA:

The foregoing proposal covers the following Addenda:

(Here list, by number, each addendum issued prior to bidding.)

NON-COLLUSIVE BIDDING CERTIFICATE.

1. By submission of this bid, the bidder and each person signing on behalf of the 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 its knowledge and belief:

   a. The prices in this bid have been arrived at independently with no 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; and
   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 a bid for the purpose of restricting competition; and
   d. If the bidder is a corporation, this certificate is and shall be deemed to have been authorized by the board of directors of the bidder, and such authorization is and shall be deemed to include the signing and submission of the bid and the inclusion therein of this certificate of non-collusion as the act and deed of the corporation.

2. Pursuant to 103-d, General Municipal Law, a bid shall not be considered for award nor shall any award be made where the above Non-Collusive Certificate, Paragraphs 1, (A), (B), (C), and (D) have not been complied with, unless explained, justified and legally excused in accordance with said law.

This proposal and/or contract shall be governed by New York State Law.

The undersigned agrees together into a contract for the above stated compensation, under the terms and conditions outlined, plus any other conditions mutually agreed upon.

NAME OF FIRM: Federal Tax ID No.:

AUTHORIZED SIGNATURE:

PRINTED OR TYPEWRITTEN
NAME OF SIGNATORY:

TITLE:

ADDRESS:

PHONE No.: FAX No.:

EMAIL ADDRESS:

DATE:

SEAL IF BIDDER
IS A CORPORATION

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

To facilitate correct drawing and execution of contract, Bidders shall supply full information concerning legal status as follows:

NAME: _____

CORPORATION CO-PARTNERSHIP AN INDIVIDUAL TRADE
(Strike out classification not applicable.)

ADDRESS OF PRINCIPAL OFFICE:

Street: _____

City: _____

State: _____

LOCAL BRANCH OFFICE ADDRESS:

_____

INCORPORATED UNDER THE LAWS OF THE STATE OF: _____

If Foreign Corporation, state if authorized to do business in the State of New York: (YES) (NO)

If Co-Partnership, Names of Partners and Addresses are:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

If doing business under Trade Name, Assumed Name or Firm Style:

Name of Owner: _____

Certificate Filed: _____ _____

(Place) (Date)

NEW YORK STATE CERTIFIED APPRENTICESHIP TRAINING PROGRAM CERTIFICATION

Pursuant to Erie County Local Law 3-2018 the following MUST be submitted along with supporting documentation unless the Contracting Agency has otherwise determined under Section 2f of the Erie County Rules and Regulations that the New York State Certified Apprenticeship Training Program does not apply.

TO BE FILLED OUT BY BIDDER: please check that which applies on sign below.

[ ] Enclosed is a copy of the certification of approval of the New York State Certified Apprenticeship Training Program (NYSCATP) by the New York State Department of Labor which, as Bidder, will use in connection with the construction contract. Also Enclosed is a written plan demonstrating how apprentices will be utilized by the Bidder As Prime Contractor or by the Subcontractor(s) to the Bidder as Prime Contractor. Such Plan shall include at a minimum:

Please check all items i through vi to acknowledge compliance:

- [ ] i. An organized written plan in place that embodies the terms and conditions of employment, training and supervision of one or more apprentices;
- [ ] ii. A schedule of wages to be paid to the apprentices consistent with the skills required and approved by the New York State Department of Labor;
- [ ] iii. Equal employment and affirmative action plans;
- [ ] iv. Workforce development and diversification goals to ensure that the contractor will diligently work toward a minority workforce goal of 30% minority and female participation combined in project personnel including trades people, trainees, journeymen, apprentices and supervisory staff;
- [ ] v. A minimum of ten percent (10%) of the total construction workers. Trades people, trainees, journeymen, and apprentices employed at any given time on a particular project by any and all contractors or subcontractors must be consist of persons participating in a NYSCATP; and
- [ ] vi. In all cases, such Certified Apprenticeship Training Program must be specific to the type and scope of work which is being performed and must have a graduation rate of at least thirty percent (30%) as determined by the New York State Department of Labor.

[ ] Enclosed is a detailed explanatory written statement as to the inapplicability of Apprenticeship participation due to: the lack of career opportunities in NYSCATP Approved by New York State Department of Labor Commissioner; OR the magnitude of the construction contract which would make use of apprentices impracticable.

_____	_____	_____
SIGNATURE	*COMPANY NAME*	*DATE*

CONTRACTOR'S OWN WORKFORCE

(This form must be submitted with the Contractor's bid proposal)

Pursuant to Section 3.18 – Contractor's Own Workforce, of the General Conditions, the Contractor submitting a bid proposal acknowledges that they will perform a minimum of 25% of the work with their own workforce as follows:

Task	Value of Work
Total Value of Workforce	
Percentage of Total Bid	%

SIGNATURE *COMPANY NAME* *DATE*

Erie County Equal Pay Certification

In order to comply with Executive Order 13 dated November 6, 2014, we hereby certify that we are in compliance with federal law, including the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, Federal Executive Order 11246 of September 24, 1965 and New York State Labor Law Section 194 (together "Equal Pay Law"). We understand that this certification is a material component of this contract. Violation of the provisions of Executive Order 13, which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

We have evaluated wages and benefits to ensure compliance with the Equal Pay Law. We certify that we have not been the subject of an adverse finding under the Equal Pay Law within the previous five years and, in the alternative, if we were the subject of an adverse finding under the Equal Pay Law within the previous five years, we have annexed a detailed description of the finding(s). In addition, we have annexed a detailed description of any currently pending claims under the Equal Pay Law in which we are involved.

_____
Signature

Verification

A) OWNER/PARTNERSHIP

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states he or she is the owner of (or a partner in) _____, and is making the foregoing Certification and that the statements and representations made in the Certification are true to his or her own knowledge.

Sworn to before me this _____Day of _____, 20__

_____
Notary

B) CORPORATE

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states that he or she is the
Name of Corporate Officer
_____, of_____,
Title of Corporate Officer Name of Corporation
the enterprise making the foregoing Certification, that he or she has read the Certification and knows its contents, that the statements and representations made in the Certification are true to his or her own knowledge, and that the Certification is made at the direction of the Board of Directors of the Corporation.
Sworn to before me this _____Day of _____, 20__

_____
Notary

ERIE COUNTY EXECUTIVE ORDER #18
ATTESTATION AND
STATEMENT OF WORKFORCE

We hereby attest that we have read and understand Erie County Executive Order #18 ("EO #18"). We acknowledge that the project we are bidding on may be subject to the provisions thereof. We further attest that, should we be identified as the successful bidder and should the appropriate individual or entity determine that this project is subject to EO #18, we will be in compliance with such Order, or we will have been granted a partial waiver by the Erie County Office of Equal Employment Opportunity prior to starting work on the project.

We further acknowledge that in order for Erie County to determine if the project we are bidding on is subject to EO #18, they need to analyze the workforce that we intend to use on such project. We therefore now do attest that it is our current intention to use _____#___ construction workers, which number includes any subcontracted construction workers, on this project should it be awarded to us. For purposes of this attestation we understand that construction worker shall mean a laborer, workman, or mechanic who is directly involved in the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise providing for any building, facility, roads, highways, bridges, or physical structure of any kind, but does not include professional services employees.

_____
Signature

Verification

STATE OF NEW YORK)
COUNTY OF ERIE) SS:

A)
_____, being duly sworn, states he or she is the owner of (or partner in) _____, and is making the foregoing Attestation and Statement of Workforce and that such representations made are true to his or her own knowledge.

B)
_____, being duly sworn, states that he or she is the (Name of Corporate Officer) _____, of (Name of Corporation or Enterprise)_____, that he or she has read the Attestation and Statement of Workforce and that such representations made are true to his or her knowledge, and are made at the direction of the Board of Directors of the Corporation.

Sworn to before me this _____ _____
Day of _____. 20_____ Notary Public

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

ACKNOWLEDGMENT OF DRUG AND ALCOHOL TESTING COMPLIANCE

_____hereby acknowledges that a drug
(PRINT OR TYPE COMPANY NAME)
and alcohol program, which is required by Federal Department of Transportation rules (CFR, Title 49, Part 40 and 382), has been implemented by this Company. The program is administered by:

(PLEASE SELECT ONE)

( ) The Company itself - The program administrator is:

_____
(Company Administrator's Name and Telephone Number)

( ) Third - Party Administrator - The program administrator is:

_____
(Third - Party Administrator's Name)

_____
(Address)

_____
(Contact Person/Telephone)

_____
(Company's Official's Name)

_____
(Signature)

_____
(Date)

Subscribed to before me on

_____, day of _____ 20___

_____
Notary Public

Due to the safety-sensitive nature of the work which your Commercial Driver Licensed (CDL) employees may perform on this project, you are required to implement a drug and alcohol testing program which follows Federal Department of Transportation rules (CFR, Title 49, Parts 40 and 382). Further, as a condition of your contract, you must also submit proof of your compliance via this form to the Erie County Department of Public Works, office of the Commissioner.

This form must be signed and returned to the Commissioner of Public Works, 14th Floor, Rath Building, 95 Franklin Street, Buffalo, NY, no later than three (3) working days after the bid opening.

NAME OF BIDDER

BID SUBMITTED BY: _____

PROPOSAL FOR:

ELECTRICAL CONSTRUCTION WORK

Buffalo Convention Center – Interior Renovations
1 Convention Center Plaza

TO: **William E. Geary,** Commissioner of Public Works
Erie County Department of Public Works
Rath Building, 95 Franklin Street, Suite 1400, Buffalo, NY 14202

Commissioner Geary:

Pursuant to and in compliance with your advertisement for Bids, the undersigned offers to furnish all materials and all plant, labor, supplies, equipment, transportation and other facilities necessary or proper for, or incidental to the construction work, as required by and in strict accord with the contract documents dated 04/29/2024 entitled: *"Buffalo Convention Center Ballroom Renovations"* including all Addenda for the following sum of:

BASE BID:

_____

/100 DOLLARS ($)

_____

Completion: We agree to complete this work within _____ calendar days from the Notice to Proceed.

CAUTION: Be advised that Erie County Local Law No. 3-2018 will be enforced. All bidders submitting bids with a value in excess of $250,000 must adhere to the provisions detailed within this Proposal and Section 10 of the General Conditions. For consideration, bidders must (1) check the appropriate box and (2) enclose the corresponding paperwork.

CAUTION: ERIE COUNTY EXECUTIVE ORDER #18: The project contemplated by these Bid Specifications may be subject to Erie County Executive Order #18 ("EO #18") which is included along with its Rules and Regulations for reference in Appendix "D" to the General Conditions of this Bid. All bids with a value that meets or exceeds $250,000 must include a verified attestation of intent to comply and statement of work force. Such attestation and statement is attached hereto. Any bids received which do not include such attestation or include an incomplete attestation will be deemed non-compliant and will not be considered for award. Should it be determined that the project is subject to EO #18, Contractor must provide county with a fully executed and verified Local and Disadvantaged Worker Compliance Certification prior to final execution of an award agreement.

CAUTION: All compliance reporting required for Erie County Local Law No. 3-2018 and Executive Order #18 shall now be completed via LCPtracker. The County will be available to assist with any reasonable training requests and support, as necessary.

NOTE: Lump-Sum Allowances are to include an Overhead and Profit (O&P) Margin. Unit-Price Allowances are NOT to include an O&P Margin. O&P for unit prices are to be included in the unit price. See Specification 012100 – Allowances for more information.

NOTE: As of April 6, 2021 the County of Erie is requiring a new experience questionnaire form. Please reference Section 5 of the Information to Bidders included within the project manual for detailed information.

SUMMARY OF WORKFORCE, MINORITY/WOMEN BUSINESS, & DISABLED VETERANS BUSINESS COMMITMENT

Requirement	Applicable when Contract value meets or exceeds:	Reference
Erie County Executive Order No.18	$250,000	General Conditions Section 8.08
New York State Certified Apprenticeship Training Program	$250,000	General Conditions Section 10
Minority/ Women Business Enterprise & Disabled Veterans Business	$100,000	General Conditions Section 8.06
General Minority and Women Workforce Goals	All Contracts	General Conditions Section 8.05
Equal Pay Certification	All Contracts	General Conditions Sections 8.04 & 8.07

***Refer to Supplemental General Conditions for any modifications to the above**

ALTERNATE BIDS

The undersigned further proposes and agrees that if any or all of the following alternates are accepted and included in the contract, the total amount of the contract as heretofore stated shall be accordingly increased, or decreased, as the case may be. All materials and workmanship shall be in strict accordance with specifications and drawings.
The Owner, as a term and condition of Bid, reserves the right to either accept or reject any or all of the alternates appearing below. Pursuant to the Owner's right of acceptance or rejection, the Contractor submitting this Proposal hereby agrees that he will hold all of the alternate prices appearing below for the duration of the contract.

A. Alternate Bid Alt.-1: In lieu of light fixture LF-6 (Base Bid), provide linear light fixture LF-6 (ALT-1) at underside of coffered ceilings. Provide controls associated with LF-6 (ALT-1).

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

B. Alternate Bid Alt.-2: Provide light fixture LF-3 along east wall of ballroom as indicated on Sheet E-101 and included in "Light Fixture Schedule" on Sheet E-001.

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

C. Alternate Bid Alt.-3: Provide linear lighting fixtures described in Alternate #1.

ADD _____

_____ **/100 DOLLARS ($)**

Completion in Calendar Days: _____

D. Alternate Bid Alt.-4: No work associated with Electrical Contract.

SUBSTITUTIONS

If awarded a contract based on the above proposal, we will use materials and equipment specified with the following exceptions:

ITEMS	MANUFACTURER'S NAME AND PRODUCT DESCRIPTION

It is understood that if any of the above proposed substitutions are not accepted by the Owner, we will furnish the product named in the specifications. Substitutions are not permitted after the award of contract.

ADDENDA:

The foregoing proposal covers the following Addenda:

(Here list, by number, each addendum issued prior to bidding.)

NON-COLLUSIVE BIDDING CERTIFICATE.

1. By submission of this bid, the bidder and each person signing on behalf of the 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 its knowledge and belief:

   a. The prices in this bid have been arrived at independently with no 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; and
   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 a bid for the purpose of restricting competition; and
   d. If the bidder is a corporation, this certificate is and shall be deemed to have been authorized by the board of directors of the bidder, and such authorization is and shall be deemed to include the signing and submission of the bid and the inclusion therein of this certificate of non-collusion as the act and deed of the corporation.

2. Pursuant to 103-d, General Municipal Law, a bid shall not be considered for award nor shall any award be made where the above Non-Collusive Certificate, Paragraphs 1, (A), (B), (C), and (D) have not been complied with, unless explained, justified and legally excused in accordance with said law.

This proposal and/or contract shall be governed by New York State Law.

The undersigned agrees together into a contract for the above stated compensation, under the terms and conditions outlined, plus any other conditions mutually agreed upon.

NAME OF FIRM: Federal Tax ID No.:

AUTHORIZED SIGNATURE:

PRINTED OR TYPEWRITTEN
NAME OF SIGNATORY:

TITLE:

ADDRESS:

PHONE No.: FAX No.:

EMAIL ADDRESS:

DATE:

SEAL IF BIDDER
IS A CORPORATION

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

To facilitate correct drawing and execution of contract, Bidders shall supply full information concerning legal status as follows:

NAME: _____

CORPORATION CO-PARTNERSHIP AN INDIVIDUAL TRADE
(Strike out classification not applicable.)

ADDRESS OF PRINCIPAL OFFICE:

Street: _____

City: _____

State: _____

LOCAL BRANCH OFFICE ADDRESS:

_____

INCORPORATED UNDER THE LAWS OF THE STATE OF: _____

If Foreign Corporation, state if authorized to do business in the State of New York: (YES) (NO)

If Co-Partnership, Names of Partners and Addresses are:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

If doing business under Trade Name, Assumed Name or Firm Style:

Name of Owner: _____

Certificate Filed: _____ _____

(Place) (Date)

NEW YORK STATE CERTIFIED APPRENTICESHIP TRAINING PROGRAM CERTIFICATION

Pursuant to Erie County Local Law 3-2018 the following MUST be submitted along with supporting documentation unless the Contracting Agency has otherwise determined under Section 2f of the Erie County Rules and Regulations that the New York State Certified Apprenticeship Training Program does not apply.

TO BE FILLED OUT BY BIDDER: please check that which applies on sign below.

[ ] Enclosed is a copy of the certification of approval of the New York State Certified Apprenticeship Training Program (NYSCATP) by the New York State Department of Labor which, as Bidder, will use in connection with the construction contract. Also Enclosed is a written plan demonstrating how apprentices will be utilized by the Bidder As Prime Contractor or by the Subcontractor(s) to the Bidder as Prime Contractor. Such Plan shall include at a minimum:

Please check all items i through vi to acknowledge compliance:

- [ ] i. An organized written plan in place that embodies the terms and conditions of employment, training and supervision of one or more apprentices;
- [ ] ii. A schedule of wages to be paid to the apprentices consistent with the skills required and approved by the New York State Department of Labor;
- [ ] iii. Equal employment and affirmative action plans;
- [ ] iv. Workforce development and diversification goals to ensure that the contractor will diligently work toward a minority workforce goal of 30% minority and female participation combined in project personnel including trades people, trainees, journeymen, apprentices and supervisory staff;
- [ ] v. A minimum of ten percent (10%) of the total construction workers. Trades people, trainees, journeymen, and apprentices employed at any given time on a particular project by any and all contractors or subcontractors must be consist of persons participating in a NYSCATP; and
- [ ] vi. In all cases, such Certified Apprenticeship Training Program must be specific to the type and scope of work which is being performed and must have a graduation rate of at least thirty percent (30%) as determined by the New York State Department of Labor.

[ ] Enclosed is a detailed explanatory written statement as to the inapplicability of Apprenticeship participation due to: the lack of career opportunities in NYSCATP Approved by New York State Department of Labor Commissioner; OR the magnitude of the construction contract which would make use of apprentices impracticable.

_____	_____	_____
SIGNATURE	*COMPANY NAME*	*DATE*

CONTRACTOR'S OWN WORKFORCE

(This form must be submitted with the Contractor's bid proposal)

Pursuant to Section 3.18 – Contractor's Own Workforce, of the General Conditions, the Contractor submitting a bid proposal acknowledges that they will perform a minimum of 25% of the work with their own workforce as follows:

Task	Value of Work
Total Value of Workforce	
Percentage of Total Bid	%

SIGNATURE *COMPANY NAME* *DATE*

Erie County Equal Pay Certification

In order to comply with Executive Order 13 dated November 6, 2014, we hereby certify that we are in compliance with federal law, including the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, Federal Executive Order 11246 of September 24, 1965 and New York State Labor Law Section 194 (together "Equal Pay Law"). We understand that this certification is a material component of this contract. Violation of the provisions of Executive Order 13, which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

We have evaluated wages and benefits to ensure compliance with the Equal Pay Law. We certify that we have not been the subject of an adverse finding under the Equal Pay Law within the previous five years and, in the alternative, if we were the subject of an adverse finding under the Equal Pay Law within the previous five years, we have annexed a detailed description of the finding(s). In addition, we have annexed a detailed description of any currently pending claims under the Equal Pay Law in which we are involved.

_____
Signature

Verification

A) OWNER/PARTNERSHIP

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states he or she is the owner of (or a partner in) _____, and is making the foregoing Certification and that the statements and representations made in the Certification are true to his or her own knowledge.

Sworn to before me this _____Day of _____, 20__

_____
Notary

B) CORPORATE

STATE OF _____)
COUNTY OF _____) SS:

_____, being duly sworn, states that he or she is the
Name of Corporate Officer
_____, of_____,
Title of Corporate Officer Name of Corporation
the enterprise making the foregoing Certification, that he or she has read the Certification and knows its contents, that the statements and representations made in the Certification are true to his or her own knowledge, and that the Certification is made at the direction of the Board of Directors of the Corporation.
Sworn to before me this _____Day of _____, 20__

_____
Notary

ERIE COUNTY EXECUTIVE ORDER #18
ATTESTATION AND
STATEMENT OF WORKFORCE

We hereby attest that we have read and understand Erie County Executive Order #18 ("EO #18"). We acknowledge that the project we are bidding on may be subject to the provisions thereof. We further attest that, should we be identified as the successful bidder and should the appropriate individual or entity determine that this project is subject to EO #18, we will be in compliance with such Order, or we will have been granted a partial waiver by the Erie County Office of Equal Employment Opportunity prior to starting work on the project.

We further acknowledge that in order for Erie County to determine if the project we are bidding on is subject to EO #18, they need to analyze the workforce that we intend to use on such project. We therefore now do attest that it is our current intention to use _____#___ construction workers, which number includes any subcontracted construction workers, on this project should it be awarded to us. For purposes of this attestation we understand that construction worker shall mean a laborer, workman, or mechanic who is directly involved in the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise providing for any building, facility, roads, highways, bridges, or physical structure of any kind, but does not include professional services employees.

_____
Signature

Verification

STATE OF NEW YORK)
COUNTY OF ERIE) SS:

A)
_____, being duly sworn, states he or she is the owner of (or partner in) _____, and is making the foregoing Attestation and Statement of Workforce and that such representations made are true to his or her own knowledge.

B)
_____, being duly sworn, states that he or she is the (Name of Corporate Officer) _____, of (Name of Corporation or Enterprise)_____, that he or she has read the Attestation and Statement of Workforce and that such representations made are true to his or her knowledge, and are made at the direction of the Board of Directors of the Corporation.

Sworn to before me this _____ _____
Day of _____. 20_____ Notary Public

ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

ACKNOWLEDGMENT OF DRUG AND ALCOHOL TESTING COMPLIANCE

_____hereby acknowledges that a drug
(PRINT OR TYPE COMPANY NAME)
and alcohol program, which is required by Federal Department of Transportation rules (CFR, Title 49, Part 40 and 382), has been implemented by this Company. The program is administered by:

(PLEASE SELECT ONE)

( ) The Company itself - The program administrator is:

_____
(Company Administrator's Name and Telephone Number)

( ) Third - Party Administrator - The program administrator is:

_____
(Third - Party Administrator's Name)

_____
(Address)

_____
(Contact Person/Telephone)

_____
(Company's Official's Name)

_____
(Signature)

_____
(Date)

Subscribed to before me on

_____, day of _____ 20___

_____
Notary Public

Due to the safety-sensitive nature of the work which your Commercial Driver Licensed (CDL) employees may perform on this project, you are required to implement a drug and alcohol testing program which follows Federal Department of Transportation rules (CFR, Title 49, Parts 40 and 382). Further, as a condition of your contract, you must also submit proof of your compliance via this form to the Erie County Department of Public Works, office of the Commissioner.

This form must be signed and returned to the Commissioner of Public Works, 14th Floor, Rath Building, 95 Franklin Street, Buffalo, NY, no later than three (3) working days after the bid opening.

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)

You have selected the For-Profit Construction questionnaire, commonly known as the "CCA-2," which may be printed and completed in this format or, **for your convenience**, **may be completed online using the New York State VendRep System.**

COMPLETION & CERTIFICATION

The person(s) completing the questionnaire must be knowledgeable about the vendor's business and operations. An owner or official must certify the questionnaire and the signature must be notarized.

NEW YORK STATE VENDOR IDENTIFICATION NUMBER (VENDOR ID)

The Vendor ID is a ten-digit identifier issued by New York State when the vendor is registered on the Statewide Vendor File. This number must now be included on the questionnaire. If the business entity has not obtained a Vendor ID, contact the IT Service Desk at ITServiceDesk@osc.state.ny.us or call 866-370-4672.

DEFINITIONS

All underlined terms are defined in the "New York State Vendor Responsibility Definitions List," found at http://www.osc.state.ny.us/vendrep/documents/questionnaire/definitions.pdf. These terms may not have their ordinary, common or traditional meanings. Each vendor is strongly encouraged to read the respective definitions for any and all underlined terms. By submitting this questionnaire, the vendor agrees to be bound by the terms as defined in the "New York State Vendor Responsibility Definitions List" existing at the time of certification.

RESPONSES

Every question must be answered. Each response must provide all relevant information which can be obtained within the limits of the law. However, information regarding a determination or finding made in error which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required. Individuals and Sole Proprietors may use a Social Security Number but are encouraged to obtain and use a federal Employer Identification Number (EIN).

NYS VENDOR ID: 000000000

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

BUSINESS ENTITY INFORMATION		
Legal Business Name	EIN ____	
Address of the Principal Place of Business (street, city, state, zip code)	New York State Vendor Identification Number	
	Telephone ext.	Fax
	Website	
Authorized Contact for this Questionnaire		
Name	Telephone ext.	Fax
Title	Email	

Additional Business Entity Identities: If applicable, list any other DBA, Trade Name, Former Name, Other Identity, or EIN used in the last five (5) years, the state or county where filed and the status (active or inactive).

Type	Name	EIN	State or County where filed	Status

I. BUSINESS CHARACTERISTICS		
1.0 Business Entity Type – Check appropriate box and provide additional information:		
a) ☐ Corporation (including PC)	Date of Incorporation	
b) ☐ Limited Liability Company (LLC or PLLC)	Date Organized	
c) ☐ Limited Liability Partnership	Date of Registration	
d) ☐ Limited Partnership	Date Established	
e) ☐ General Partnership	Date Established	County (if formed in NYS)
f) ☐ Sole Proprietor	How many years in business?	
g) ☐ Other	Date Established	
If Other, explain:		
1.1 Was the Business Entity formed in New York State?		☐ Yes ☐ No
If "No," indicate jurisdiction where the Business Entity was formed:		
☐ United States	State	
☐ Other	Country	

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

I. BUSINESS CHARACTERISTICS	
1.2 Is the Legal Business Entity publicly traded?	☐ Yes ☐ No
If "Yes," provide the CIK code or Ticker Symbol:	
1.3 Is the Business Entity currently registered to do business in New York State? *Note: Select "Not Required" if the Business Entity is a Sole Proprietor or General Partnership*	☐ Yes ☐ No ☐ Not Required
If "No," explain why the Business Entity is not required to be registered to do business in New York State:	
1.4 Is the responding Business Entity a Joint Venture? Note: If the submitting Business Entity is a Joint Venture, also submit a separate questionnaire for each Business Entity comprising the Joint Venture.	☐ Yes ☐ No
1.5 If the Business Entity's Principal Place of Business is not in New York State, does the Business Entity maintain an office in New York State? *(Select "N/A" if Principal Place of Business is in New York State.)*	☐ Yes ☐ No ☐ N/A
If "Yes," provide the address and telephone number for one office located in New York State.	
1.6 Is the Business Entity a New York State certified Minority-Owned Business Enterprise, or Women-Owned Business Enterprise, or New York State Small Business, or federally certified Disadvantaged Business Enterprise?	☐ Yes ☐ No
If "Yes," check all that apply: ☐ New York State certified Minority-Owned Business Enterprise (MBE) ☐ New York State certified Women-Owned Business Enterprise (WBE) ☐ New York State Small Business ☐ Federally certified Disadvantaged Business Enterprise (DBE)	
1.7 Identify each person or business entity that is, or has been within the past five (5) years, Principal Owner of 5.0% or more of the firm's shares; a Business Entity Official; or one of the five largest shareholders, if applicable. *(Attach additional pages if necessary.)* Joint Ventures: Provide information for all firms involved.	

Name *(For each person, include middle initial)*	Title	Percentage of ownership (Enter 0%, if not applicable)	Employment status with the firm
			☐ Current ☐ Former
			☐ Current ☐ Former
			☐ Current ☐ Former
			☐ Current ☐ Former

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

II. AFFILIATE and JOINT VENTURE RELATIONSHIPS		
2.0 Are there any other construction-related firms in which, now or in the past five years, the submitting Business Entity or any of the individuals or business entities listed in question 1.7 either owned or owns 5.0% or more of the shares of, or was or is one of the five largest shareholders or a director, officer, partner or proprietor of said other firm? *(Attach additional pages if necessary.)*		☐ Yes ☐ No
Firm/Company Name	Firm/Company EIN (If available)	Firm/Company's Primary Business Activity
Firm/Company Address		
Explain relationship with the firm and indicate percent of ownership, if applicable (enter N/A, if not applicable):		
Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this firm?		☐ Yes ☐ No
Individual's Name *(Include middle initial)*	Position/Title with Firm/Company	
2.1 Does the Business Entity have any construction-related affiliates not identified in the response to question 2.0 above? *(Attach additional pages if necessary.)*		☐ Yes ☐ No
Affiliate Name	Affiliate EIN (If available)	Affiliate's Primary Business Activity
Affiliate Address		
Explain relationship with the affiliate and indicate percent of ownership, if applicable *(enter N/A, if not applicable)*:		
Are there any shareholders, directors, officers, owners, partners or proprietors that the submitting Business Entity has in common with this affiliate?		☐ Yes ☐ No
Individual's Name *(Include middle initial)*	Position/Title with Firm/Company	
2.2 Has the Business Entity participated in any construction-related Joint Ventures within the past three (3) years? *(Attach additional pages if necessary.)*		☐ Yes ☐ No
Joint Venture Name	Joint Venture EIN (If available)	Identify parties to the Joint Venture

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)

III. CONTRACT HISTORY	
3.0 Has the Business Entity completed any construction contracts?	☐ Yes ☐ No
If "Yes," list the ten most recent construction contracts the Business Entity has completed using Attachment A – Completed Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3294s.doc. *If less than ten, include most recent subcontracts on projects up to that number.*	
3.1 Does the Business Entity currently have uncompleted construction contracts?	☐ Yes ☐ No
If "Yes," list all current uncompleted construction contracts by using Attachment B – Uncompleted Construction Contracts, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3295s.doc. *Note: Ongoing projects must be included.*	

IV. INTEGRITY – CONTRACT BIDDING ***Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:***	
4.0 Been suspended or debarred from any government contracting process or been disqualified on any government procurement?	☐ Yes ☐ No
4.1 Been subject to a denial or revocation of a government prequalification?	☐ Yes ☐ No
4.2 Had any bid rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid?	☐ Yes ☐ No
4.3 Had a proposed subcontract rejected by a government entity for lack of qualifications, responsibility or because of the submission of an informal, non-responsive or incomplete bid?	☐ Yes ☐ No
4.4 Had a low bid rejected on a government contract for failure to make good faith efforts on any Minority-Owned Business Enterprise, Women-Owned Business Enterprise or Disadvantaged Business Enterprise goal or statutory affirmative action requirements on a previously held contract?	☐ Yes ☐ No
4.5 Agreed to a voluntary exclusion from bidding/contracting with a government entity?	☐ Yes ☐ No
4.6 Initiated a request to withdraw a bid submitted to a government entity or made any claim of an error on a bid submitted to a government entity?	☐ Yes ☐ No
For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, project(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.	

V. INTEGRITY – CONTRACT AWARD ***Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:***	
5.0 Defaulted on or been suspended, cancelled or terminated for cause on any contract?	☐ Yes ☐ No
5.1 Been subject to an administrative proceeding or civil action seeking specific performance or restitution (except any disputed work proceeding) in connection with any government contract?	☐ Yes ☐ No
5.2 Entered into a formal monitoring agreement, consent decree or stipulation settlement as specified by, or agreed to with, any government entity?	☐ Yes ☐ No
5.3 Had its surety called upon to complete any contract whether government or private sector?	☐ Yes ☐ No
5.4 Forfeited all or part of a standby letter of credit in connection with any government contract?	☐ Yes ☐ No

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)

V. INTEGRITY – CONTRACT AWARD

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity/owners involved, project(s), contract number(s), relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VI. CERTIFICATIONS/LICENSES

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

6.0	Had a revocation or suspension of any business or professional permit and/or license?	☐ Yes ☐ No
6.1	Had a denial, decertification, revocation or forfeiture of New York State certification of Minority-Owned Business Enterprise, Women-Owned Business Enterprise or a federal certification of Disadvantaged Business Enterprise status, for other than a change of ownership?	☐ Yes ☐ No

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

7.0	Been the subject of a criminal investigation, whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or federal law?	☐ Yes ☐ No
7.1	Been the subject of:	
	(i.) An indictment, grant of immunity, judgment or conviction (including entering into a plea bargain) for conduct constituting a crime; or	☐ Yes ☐ No
	(ii.) Any criminal investigation, felony indictment or conviction concerning the formation of, or any business association with, an allegedly false or fraudulent Minority-Owned Business Enterprise, Women-Owned Business Enterprise, or a Disadvantaged Business Enterprise?	☐ Yes ☐ No
7.2	Received any OSHA citation, which resulted in a final determination classified as serious or willful?	☐ Yes ☐ No
7.3	Had a government entity find a willful prevailing wage or supplemental payment violation?	☐ Yes ☐ No
7.4	Had a New York State Labor Law violation deemed willful?	☐ Yes ☐ No
7.5	Entered into a consent order with the New York State Department of Environmental Conservation, or a federal, state or local government enforcement determination involving a violation of federal, state or local environmental laws?	☐ Yes ☐ No

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
FOR-PROFIT CONSTRUCTION (CCA-2)

VII. LEGAL PROCEEDINGS/GOVERNMENT INVESTIGATIONS

Within the past five (5) years, has the Business Entity, an affiliate, or any predecessor company or entity:

7.6	Other than previously disclosed, been the subject of any citations, notices or violation orders; a pending administrative hearing, proceeding or determination of a violation of: • Federal, state or local health laws, rules or regulations; • Federal, state or local environmental laws, rules or regulations; • Unemployment insurance or workers compensation coverage or claim requirements; • Any labor law or regulation, which was deemed willful; • Employee Retirement Income Security Act (ERISA); • Federal, state or local human rights laws; • Federal, state or local security laws?	☐ Yes ☐ No

For each "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

Note: Information regarding a determination or finding made in error, which was subsequently corrected or overturned, and/or was withdrawn by the issuing government entity, is not required.

VIII. LEADERSHIP INTEGRITY

If the Business Entity is a Joint Venture Entity, answer "N/A - Not Applicable" to questions in this section.

Within the past five (5) years has any individual previously identified or any individual currently or formerly having the authority to sign, execute or approve bids, proposals, contracts or supporting documentation on behalf of the Business Entity with any government entity been:

8.0	Sanctioned relative to any business or professional permit and/or license?	☐ Yes ☐ No ☐ N/A
8.1	Suspended, debarred or disqualified from any government contracting process?	☐ Yes ☐ No ☐ N/A
8.2	The subject of a criminal investigation, whether open or closed, or an indictment for any business-related conduct constituting a crime under local, state or federal law?	☐ Yes ☐ No ☐ N/A
8.3	Charged with a misdemeanor or felony, indicted, granted immunity, convicted of a crime or subject to a judgment for: (i.) Any business-related activity, including but not limited to fraud, coercion, extortion, bribe or bribe-receiving, giving or accepting unlawful gratuities, immigration or tax fraud, racketeering, mail fraud, wire fraud, price-fixing or collusive bidding; or (ii.) Any crime, whether or not business-related, the underlying conduct of which related to truthfulness, including but not limited to the filing of false documents or false sworn statements, perjury or larceny	☐ Yes ☐ No ☐ N/A

For each "Yes," provide an explanation of the issue(s), the individual involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer(s) below or attach additional sheets with numbered responses.

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

IX. FINANCIAL AND ORGANIZATIONAL CAPACITY

9.0 Within the past five (5) years, has the Business Entity or any affiliate received any formal unsatisfactory performance assessment(s) from any government entity on any contract?	☐ Yes ☐ No
If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates, any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.	
9.1 Within the past five (5) years, has the Business Entity or any affiliate had any liquidated damages assessed over $25,000?	☐ Yes ☐ No
If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the contracting party involved, the amount assessed and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.	
9.2 Within the past five (5) years, has the Business Entity or any affiliate had any liens, claims or judgments over $25,000 filed against the Business Entity which remain undischarged or were unsatisfied for more than 90 days? (*Note: Including but not limited to tax warrants or liens. Do not include UCC filings.)*	☐ Yes ☐ No
If "Yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, relevant dates, the Lien holder or Claimants' name(s), the amount of the lien(s) and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.	
9.3 In the last seven (7) years, has the Business Entity or any affiliate initiated or been the subject of any bankruptcy proceedings, whether or not closed, or is any bankruptcy proceeding pending?	☐ Yes ☐ No
If "Yes," provide the Business Entity involved, the relationship to the submitting Business Entity, the bankruptcy chapter number, the court name and the docket number. Indicate the current status of the proceedings as "Initiated," "Pending" or "Closed." Provide answer below or attach additional sheets with numbered responses.	

9.4 What is the Business Entity's Bonding Capacity?	
a. Single Project	b. Aggregate (All Projects)
9.5 List Business Entity's Gross Sales for the previous three (3) Fiscal Years:	

1st Year (Indicate year) Gross Sales	2nd Year (Indicate year) Gross Sales	3rd Year (Indicate year) Gross Sales
9.6 List Business Entity's Average Backlog for the previous three (3) fiscal years: (Estimated total value of uncompleted work on outstanding contracts)		
1st Year (Indicate year) Amount	2nd Year (Indicate year) Amount	3rd Year (Indicate year) Amount
9.7 Attach Business Entity's most recent annual financial statement and accompanying notes or complete Attachment C – Financial Information, found at www.osc.state.ny.us/vendrep/documents/questionnaire/ac3296s.xls. *(This information must be attached.)*		

NYS VENDOR ID: 000000000

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

X. FREEDOM OF INFORMATION LAW (FOIL)	
10.0 Indicate whether any information provided herein is believed to be exempt from disclosure under the Freedom of Information Law (FOIL). *Note: A determination of whether such information is exempt from FOIL will be made at the time of any request for disclosure under FOIL. Attach additional pages if necessary.*	☐ Yes ☐ No
If "Yes," indicate the question number(s) and explain the basis for the claim.	

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE FOR-PROFIT CONSTRUCTION (CCA-2)

Certification

The undersigned: (1) recognizes that this questionnaire is submitted for the express purpose of assisting New York State government entities (including the Office of the State Comptroller (OSC)) in making responsibility determinations regarding award or approval of a contract or subcontract and that such government entities will rely on information disclosed in the questionnaire in making responsibility determinations; (2) acknowledges that the New York State government entities and OSC may, in their discretion, by means which they may choose, verify the truth and accuracy of all statements made herein; and (3) acknowledges that intentional submission of false or misleading information may result in criminal penalties under State and/or Federal Law, as well as a finding of non-responsibility, contract suspension or contract termination.

The undersigned certifies that he/she:

- is knowledgeable about the submitting Business Entity's business and operations;
- has read and understands all of the questions contained in the questionnaire;
- has not altered the content of the questionnaire in any manner;
- has reviewed and/or supplied full and complete responses to each question;
- to the best of his/her knowledge, information and belief, confirms that the Business Entity's responses are true, accurate and complete, including all attachments, if applicable;
- understands that New York State government entities will rely on the information disclosed in the questionnaire when entering into a contract with the Business Entity; and
- is under an obligation to update the information provided herein to include any material changes to the Business Entity's responses at the time of bid/proposal submission through the contract award notification, and may be required to update the information at the request of the New York State government entities or OSC prior to the award and/or approval of a contract, or during the term of the contract.

Signature of Owner/Official _____

Printed Name of Signatory _____

Title _____

Name of Business _____

Address _____

City, State, Zip _____

Sworn to before me this _____ day of _____, 20___;

_____ Notary Public

NEW YORK STATE

VENDOR RESPONSIBILITY QUESTIONNAIRE

ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS

Vendor Name: **NYS Vendor ID:**

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number:					
1.	Agency/Owner		Award Date	Amount	Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
2.	Agency/Owner		Award Date	Amount	Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
3.	Agency/Owner		Award Date	Amount	Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
4.	Agency/Owner		Award Date	Amount	Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
5.	Agency/Owner		Award Date	Amount	Date Completed
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable

NEW YORK STATE

VENDOR RESPONSIBILITY QUESTIONNAIRE

ATTACHMENT A – COMPLETED CONSTRUCTION CONTRACTS

Vendor Name: **NYS Vendor ID:**

Question 3.0: List the ten most recent construction contracts the Business Entity has completed. If less than ten, include most recent subcontracts on projects up to that number:						
6.	Agency/Owner			Award Date	Amount	Date Completed
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
7.	Agency/Owner			Award Date	Amount	Date Completed
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
8.	Agency/Owner			Award Date	Amount	Date Completed
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
9.	Agency/Owner			Award Date	Amount	Date Completed
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
10.	Agency/Owner			Award Date	Amount	Date Completed
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer		
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable

NEW YORK STATE

VENDOR RESPONSIBILITY QUESTIONNAIRE

ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name: **NYS Vendor ID:**

Question 3.1: List all current uncompleted construction contracts:					
1.	Agency/Owner			Award Date	Completion Date
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
		Total Contract Amount	Amount Sublet to others		Uncompleted Amount
2.	Agency/Owner			Award Date	Completion Date
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
		Total Contract Amount	Amount Sublet to others		Uncompleted Amount
3.	Agency/Owner			Award Date	Completion Date
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
		Total Contract Amount	Amount Sublet to others		Uncompleted Amount
4.	Agency/Owner			Award Date	Completion Date
	Contact Person	Telephone No.	Designer Architect and /or Design Engineer		
	Contract No. / Prime or Sub	Joint Venture (JV) Name, if applicable			EIN of JV, if applicable
		Total Contract Amount	Amount Sublet to others		Uncompleted Amount

NEW YORK STATE

VENDOR RESPONSIBILITY QUESTIONNAIRE

ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name: **NYS Vendor ID:**

Question 3.1: List all current uncompleted construction contracts:

5.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount
6.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount
7.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount
8.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount

NEW YORK STATE

VENDOR RESPONSIBILITY QUESTIONNAIRE

ATTACHMENT B – UNCOMPLETED CONSTRUCTION CONTRACTS

Vendor Name: **NYS Vendor ID:**

Question 3.1: List all current uncompleted construction contracts:

9.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount
10.	Agency/Owner			Award Date	Completion Date
	Contact Person		Telephone No.	Designer Architect and /or Design Engineer	
	Contract No.	Prime or Sub	Joint Venture (JV) Name, if applicable		EIN of JV, if applicable
			Total Contract Amount	Amount Sublet to others	Uncompleted Amount

Grand Total All Uncompleted Contracts	**$0.00**

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

As of Date: _____

ASSETS

Current Assets

1. Cash			$ -
2. Accounts receivable - less allowance for doubtful accounts	$ -		
Retainers included in accounts receivable	$ -		
Claims included in accounts receivable not yet approved or in litigation	$ -		
Total Accounts Receivable			$ -
3. Notes receivable - due within one year			$ -
4. Inventory - materials			$ -
5. Contract costs in excess of billings on uncompleted contracts			$ -
6. Accrued income receivable			
Interest	$ -		
Other (list) _____	$ -		
_____	$ -		
Total Accrued Income Receivable			$ -
7. Deposits			
Bid and Plan _____	$ -		
Other (list) _____	$ -		
_____	$ -		
Total Deposits			$ -
8. Prepaid Expenses			
Income Taxes	$ -		
Insurance	$ -		
Other (list) _____	$ -		
_____	$ -		
Total Prepaid Expenses			$ -
9. Other Current Assets			
Other (list) _____	$ -		
_____	$ -		
Total Other Current Assets			$ -
10. Total Current Assets			$ -
11. Investments			
Listed securities-present market value	$ -		
Unlisted securities-present value	$ -		
Total Investments			$ -

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

12. Fixed Assets			
Land	$ -		
Building and improvements	$ -		
Leasehold improvements	$ -		
Machinery and equipment	$ -		
Automotive equipment	$ -		
Office furniture and fixtures	$ -		
Other (list) _____	$ -		
_____	$ -		
Total		$ -	
Less: Accumulated depreciation		$ -	
Total Fixed Assets - Net			$ -
13. Other Assets			
Loans receivable			
Officers	$ -		
Employees	$ -		
Shareholders	$ -		
Cash surrender value of officers' life insurance	$ -		
Organization expense – net of amortization	$ -		
Notes receivable - due after one year	$ -		
Other (list) _____	$ -		
_____	$ -		
Total Other Assets			$ -
14. TOTAL ASSETS			$ -

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

LIABILITIES

Current Liabilities

15. Accounts payable		$ -
16 a. Loans from shareholders - due within one year		$ -
16 b. Other Loans - due within one year		$ -
17. Notes payable - due within one year		$ -
18. Mortgage payable - due within one year		$ -
19. Other payables - due within one year		
Other (list) _____	$ -	
_____	$ -	
Total Other Payables - due within one year		$ -
20. Billings in excess of costs and estimated earnings		$ -
21. Accrued expenses payable		
Salaries and wages	$ -	
Payroll taxes	$ -	
Employees' benefits	$ -	
Insurance	$ -	
Other	$ -	
Total Accrued Expenses Payable		$ -
22. Dividends payable		$ -
23. Income taxes payable		
State	$ -	
Federal	$ -	
Other	$ -	
Total Income Taxes Payable		$ -
24. Total current liabilities		$ -
25. Deferred income taxes payable		
State	$ -	
Federal	$ -	
Other	$ -	
Total Deferred Income Taxes		$ -
26. Long Term Liabilities		
Loans from shareholders - due after one year	$ -	
Other Loans - due within one year		
Principle	$ -	
Interest	$ -	
Notes payable - due after one year	$ -	
Mortgage - due after one year	$ -	
Other payables - due after one year	$ -	
Other (list) _____	$ -	
_____	$ -	
Total Long Term Liabilities		$ -

NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE
ATTACHMENT C - FINANCIAL INFORMATION

NYS Vendor ID: _____

27. Other Liabilities			
Other (list) _____	$ -		
_____	$ -		
Total Other Liabilities		$ -	
28. TOTAL LIABILITIES			$ -

NET WORTH

29. Net Worth (if proprietorship or partnership)			$ -
30. Stockholders' Equity			
Common stock issued and outstanding	$ -		
Preferred stock issued and outstanding	$ -		
Retained earnings	$ -		
Total	$ -		
Less: Treasury stock	$ -		
31. TOTAL STOCKHOLDERS' EQUITY			$ -
32. TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY			$ -

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COUNTY OF ERIE STANDARD INSURANCE CERTIFICATE

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EXECUTIVE ORDER NO.18 – FIRST SOURCE HIRING POLICY FOR COUNTY CONSTRUCTION PROJECTS

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FIRST SOURCE POLICY TARGETED ZIP CODES – ERIE COUNTY ZIP CODES WITH 20% POVERTY RATE OR HIGHER

GENERAL CONDITIONS OF THE CONTRACT

SECTION 1 - DEFINITIONS

1.01 CONTRACT DOCUMENTS - The Contract comprises all the documents listed in the Table of Contents of the Project Manual, including all additions, deletions and modifications incorporated therein before the execution of the Contract:

A. Legal and Procedural Documents

B. General Conditions of the Contract

C. Supplementary General Conditions

D. Application for Payment

E. Detailed Specifications

F. Drawings

1.02 ARCHITECT / ENGINEER is the Architect, Architect / Engineer or Engineer named in the Contract Documents, or the representative duly authorized in writing to act for such Architect, Architect / Engineer or Engineer.

1.03 OWNER is the County of Erie. With respect to approval of the Contract Award, Change Orders and Final Payment, as well as the appropriation of funds therefore, the County Legislature shall be the Owner's representative. For Contract execution, the County Executive shall be the Owner's representative. In legal matters, the County Attorney shall be the County's representative. In all other matters, the County's representative shall be the Commissioner of Public Works, or in his absence, his duly authorized representative.

1.04 CONTRACTOR is the Contractor named in the Contract Documents.

1.05 SUBCONTRACTOR is any person, firm or corporation who has a direct contract with the Contractor and who acts for or in behalf of the Contractor in executing any part of the Contract, but does not include one who merely furnishes material or equipment.

1.06 PROPOSAL: The offer of a Bidder to perform the work described by the Contract Documents when made out and submitted on the prescribed Proposal Form, properly signed and guaranteed.

1.07 PROPOSAL GUARANTY: The Bid Bond, which shall accompany each Proposal submitted by the Bidder, is a guarantee that the Bidder will enter into a contract with the Owner for the construction of the work if the contract is awarded to him.

1.08 PERFORMANCE LABOR AND MATERIAL PAYMENT BOND: The Owner’s standard bond document and the only approved form of security to be submitted by the contractor and his surety as a guarantee to faithfully execute the work in accordance with the terms of the contract and to pay all amounts owed by him to all laborers, tradesmen and suppliers in connection with the work covered by his contract.

1.09 SURETY is the person, firm or corporation that executes the Contractor's Performance Bond.

1.10 PROJECT MANUAL shall mean the Legal and Procedural Documents, General Conditions of the Contract, together with the modifications thereof, and the Detailed Specifications, with all addenda thereto.

1.11 DRAWINGS are those enumerated in the contract documents.

1.12 WRITTEN NOTICE shall be considered as served when delivered in person or sent by registered or certified mail to the individual, firm or corporation or to the last business address of such known to him who serves the notice.

A. Notice to Owner - All required notices to the Owner shall be delivered to the Erie County Department of Public Works – Office of the Commissioner, 14th Floor Rath Building, 95 Franklin Street, Buffalo, NY 14202.

B. Change of Address - Each party shall advise the other parties to the Contract promptly as to any change in his business address until completion of the Contract.

1.13 ACT OF GOD means an earthquake, flood, tornado or other cataclysmic phenomenon of nature. Rain, wind, flood or other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God and no reparation shall be made to the Contractor for damaged to the work resulting there from.

SECTION 2 - DRAWINGS, SPECIFICATIONS AND RELATED DATA

2.01 INTENT OF DRAWINGS AND SPECIFICATIONS - The intent of the Drawings and Specifications is that the Contractor furnish all labor and materials, equipment and transportation necessary for the proper execution of the work unless specifically noted otherwise. The Contractor shall do all the work shown on the Drawings and described in the Specifications and all incidental work considered necessary to complete the work included in the contract in a substantial and acceptable manner, and to fully complete the work or improvement, ready for use, occupancy and operation by the Owner.

2.02 CONFLICT - If there is conflicting variance between the Drawings and the Specifications, the provisions of the Specifications shall control. In case of conflict between the General Conditions of the Contract or any modifications thereof and the Detailed Specification Requirements, the Detailed Specification Requirements shall control.

2.03 DISCREPANCIES IN DRAWINGS - Any discrepancies found between the Drawings and Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Architect / Engineer , who shall promptly correct such error or omission in writing. Any work done by the Contractor after his discovery of such discrepancies, errors or omissions shall be done at the Contractor's risk.

2.04 DRAWINGS AND SPECIFICATIONS - The complete requirements of the work to be performed under the Contract shall be set forth in Drawings and Specifications to be supplied through the Architect / Engineer or by the Architect / Engineer as consultant to the Owner.

2.05 ADDITIONAL INSTRUCTIONS - Further instructions may be issued by the Architect / Engineer during the progress of the work by means of Drawings or otherwise to make more clear or specific the Drawings and Specifications or as may be necessary to explain or illustrate changes in the work to be done.

2.06 COPIES OF DRAWINGS AND SPECIFICATIONS FURNISHED - Except as provided for otherwise, all required copies of Drawings and Specifications necessary for the execution of the work shall be furnished to the Contractor without charge.

2.07 DRAWINGS AND SPECIFICATIONS AT JOB SITE - One complete set of all Drawings and Specifications shall be maintained at the job site and shall be available to the Architect / Engineer at all times.

2.08 OWNERSHIP OF DRAWINGS AND SPECIFICATIONS - Except as otherwise provided in the Owner's Contract with the Architect / Engineer, all original or duplicated Drawings and Specifications and other data prepared by the Architect / Engineer shall remain the property of the Owner and/or Architect / Engineer, and they shall not be reused on other work, but shall be returned upon completion of the work.

2.09 DIMENSIONS - Figured dimensions on the plans will be used in preference to scaling the Drawings. Where the work of the Contractor is affected by finish dimensions, these shall be determined by the Contractor at the site, and he shall assume the responsibility therefore.

2.10 MODELS - All models prepared for this work shall become the property of the Owner at the completion of the work.

2.11 SAMPLES - All samples called for in the Specifications or required by the Architect / Engineer shall be furnished by the Contractor and shall be submitted to the Architect / Engineer for his approval. Samples shall be furnished so as not to delay fabrication, allowing the Architect / Engineer reasonable time for the consideration of the samples submitted.

A. Samples of Tests - Contractor shall furnish such samples of material as may be required for examination and test. All materials and workmanship shall be in accordance with approved samples. All samples of materials for tests shall be taken according to methods provided in the Specifications.

2.12 SHOP DRAWINGS – A schedule of shop drawings, setting data, and other manufacturer's data shall be submitted by the Contractor for approval of the Architect/Engineer. This schedule shall be coordinated with the project construction schedule and shall be submitted within 30 days after award of contracts.

A. The shop drawings schedule should list the following information:

1. Description of items for which shop drawings and data shall be submitted.

2. Approximate date for first submittal.

3. Approximate number of calendar days required for fabrication and delivery after final approval.

4. Number of copies each item for preliminary and final submittals.

B. The Contractor shall be responsible for the accuracy, completeness, and suitability of the information furnished or shop drawings prepared by the subcontractors and vendors. The Contractor shall check and approve all shop drawings before they are submitted to the Architect/Engineer. Such approval shall be understood to indicate the Contractor's assurances that the items proposed by the drawings and data sheets are in accordance with the contract. Shop drawings shall include setting drawings, schedules, catalogs, brochures, manufacturer's data and other information required to evaluate and install.

C. Shop drawings may be disapproved by the Architect/Engineer for the following reasons:

1. Drawing has not been approved by the Contractor.

2. Drawings have been prepared without due regard for information and requirements called for or logically implied by the Contract Documents.

3. The information is not sufficiently complete or accurate to verify that that the work represented is in accordance with the Contract Documents.

D. Shop drawings and submitted data shall be graded by the Architect/Engineer as follows:

1. Reviewed

   a. There shall be no correction marks on drawings.

   b. The work may be fabricated.

2. Make Noted Corrections

   a. Corrections shall be of a minor nature.

   b. The work may be fabricated at the Contractor's option, except where otherwise noted.

   c. Corrected copies shall be submitted within a reasonable time for final approval.

   d. Not Approved

3. Rejected

   a. Drawings are not acceptable.

4. Revise and Re-submit

   a. Drawings are basically correct, but due to the nature and/or extent of the corrections and/or revisions required, work shall not be fabricated.

5. Submit Item Specified

   a. Contractor shall submit item as specified in the specifications.

6. The Architect / Engineer shall, within fourteen (14) days of the submittal of any shop drawings, return one copy to the contractor marked with all corrections and changes.

E. The Architect/Engineer's approval of shop drawings is subject to the following conditions:

1. Approval does not authorize changes to contract requirements unless so stated in a separate letter or change order.

2. The Contractor shall verify all dimensions.

3. Checking and approval of shop drawings shall be only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Contractor shall be responsible for the dimensions to be confirmed and correlated at the jobsite; for all quantities, for information that pertains solely to the fabrication processes or to techniques or construction, and for coordination of the work of all trades.

F. Shop drawings should generally provide the following information:

1. Job Title and Shop Drawing Number.

2. Date of Drawing and Revisions.

3. Certification that drawing has been checked by Contractor and is in compliance with the Contract Documents.

4. Details of Fabrication, Assembly and Erection.

5. Materials Used.

6. Required Dimensions.

7. Details of connections of related work.

8. Designation of the other subcontractor, trade or Contractor who provides related work shown on drawings. If not shown, this information should be provided by the Contractor before the first submittal is transmitted to the Architect / Engineer.

9. Information relating to the capacities, controls and other specification data for items or equipment.

10. Schedule, where pertinent, information on finishes or protective coating, including color samples as required.

G. Distribution Procedure:

1. In general, all shop drawings and submittals shall be received by the Architect / Engineer under a covering transmittal memorandum from the Contractor.

2. Unless otherwise indicated, initial and subsequent submissions, except final submissions shall consist of one (1) reproducible transparency and two (2) prints. The two (2) prints will be retained by the Architect /Engineer and the reproducible transparency will be returned to the Contractor.

3. Submission of catalogs, brochures and other data, where reproducible transparencies are not feasible, shall consist of a minimum of four (4) copies, two (2) of which shall be retained and two (2) returned to the Contractor. Final submittal shall include extra copies as maybe be required by the Contractor.

4. The Contractor shall make all necessary corrections to conform to the corrections and changes requested by the Architect / Engineer.

5. When shop drawings are “approved “and so stamped, the Contractor shall then submit an additional three (3) copies to the Architect/ Engineer which will be retained.

6. The Contractor shall make a minimum distribution of “approved” copies as follows:

7. One or more copies to the fabricator and /or manufacturer’s representative.

8. One copy in the contractor’s office.

9. One copy to file and keep in good condition at the site.

2.13 QUALITY OF EQUIPMENT AND MATERIALS - In order to establish standard of quality, the Architect / Engineer may, in the Detailed Specifications, refer to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable for performance, capacity and design.

A. The Contractor shall furnish the complete list of proposed desired substitutions at the time of bidding, in the space provided on the Proposal Form, together with such engineering and catalog data as the Architect / Engineer may require.

B. Substitutions

1. Requests for substitutions will be considered under the following time limitations and situations:

    a. Not less than ten (10) calendar days before bids are due.
    b. Work or equipment specified becomes unavailable through unforeseen events such as strikes, loss of manufacturers' plant through fire, flood or bankruptcy.

2. Requested substitutions will be reviewed and adjudged. Failure of the Owner to raise objection shall not constitute a waiver of any of the requirements of the Contract Documents.

3. Request for substitutions shall include complete data with drawings and samples as required, including the following:

    a. Quality Comparison – Proposed substitution versus the specified product.
    b. Changes required in other work because of the substitution.
    c. Effect on the construction schedule.
    d. Cost Data – Resulting from the proposed substitution versus the specified product. The Contractor shall certify that the cost data presented is complete and includes all related costs under this Contract.

4. When proposing a substitution, the Contractor represents that:

    a. They have investigated the proposed substitution and have determined that it is equal to or better than the product specified.
    b. They will guarantee the substitution in the same manner as the product specified.
    c. They will coordinate and make other changes as required in the work as a result of the substitution.
    d. They waive all claims for additional costs as a result of the substitution, with the exception of those identified above under "cost data".

5. The Owner will be sole judge of the acceptability of the proposed substitution.

6. The Owner will have authority to approve or reject substitutions or to change the specified standards of quality. However, neither this authority to act under this provision nor any decision made in good faith, either to exercise or not to exercise this authority, shall give rise to any duty or responsibility of the Owner to the Contractor, any Subcontractor, any Sub-Subcontractor, any of their agents or employees, or any other persons performing the work or offering to perform the work.

C. The Contractor shall abide by the Architect / Engineer's judgment when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified material or item of equipment in such case. All proposals for substitutions shall be submitted in writing by the Contractor and not by sub-contractors, individual trades or material suppliers. The Architect / Engineer will approve or disapprove proposed substitutions in writing. No substitute materials or equipment shall be used unless approved in writing.

2.14 EQUIPMENT APPROVAL DATA - The Contractor shall furnish one copy of complete catalog data for every manufactured item of equipment and all components to be used in the work, including specific performance data, material description, rating, capacity, working pressure, material gage or thickness, brand name, catalog number and general type.

A. This submission shall be compiled by the Contractor and approved by the Architect / Engineer before any of the equipment is ordered.

B. Each data sheet or catalog in the submission shall be indexed according to specification section and paragraph for easy reference.

C. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Architect / Engineer and Owner.

D. Catalog data for equipment approved by the Architect / Engineer does not in any case supersede the Architect / Engineer's Contract Documents. The approval of the Architect / Engineer shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, unless he has in writing called the Architect / Engineer's attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Architect / Engineer's Contract Documents for deviations and errors.

E. It shall be the responsibility of the Contractor to insure that items to be furnished fit the space available. He shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Drawings and Specifications.

F. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment to operate properly, and in harmony with the intent of the Drawings and Specifications, and to make all changes in the work required by the different arrangement of connections without extra cost to the Owner.

2.15 SURVEYS - Unless otherwise specified, the Owner shall establish all base lines for the location of the principal component parts of the work together with a suitable number of bench marks adjacent to the work. Based upon the information provided by the Owner, the Contractor shall develop and make all detail surveys necessary for construction, including slope stakes, batterboards, stakes for pile locations and other working points, lines and elevations. The Contractor shall have the responsibility to carefully preserve bench marks, reference points and stakes, and, in the case of destruction thereof by the Contractor or resulting from his negligence, the Contractor shall be charged with the expense and damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

2.16 RECORD DOCUMENT SUBMITTALS

A. Record Drawings: Prior to acceptance by the Owner of all work covered by the contract each contractor shall furnish to the Architect/ Engineer project record documents as required under Division 1.

B. Operation and Maintenance Manuals: Prior to acceptance by the Owner of all work covered by the contract each contractor shall furnish to the Architect/ Engineer operation and maintenance manuals as required under Division 1.

SECTION 3 - RELATIONS AMONG OWNER, CONTRACTOR AND ARCHITECT / ENGINEER

3.01 ARCHITECT / ENGINEER 'S RESPONSIBILITY AND AUTHORITY - All work shall be done under the general administration of the Architect / Engineer. The Architect / Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, rate or progress of work, interpretation of Drawings and Specifications and all questions, other than legal questions, as to the acceptable fulfillment of the Contract on the part of the Contractor.

3.02 ARCHITECT / ENGINEER'S DECISIONS - All decisions of the Architect / Engineer concerning the intent of the drawings and specifications shall be final. No changes may be made in the drawings or specifications involving more or less quantities of materials, changes in the quality of materials or workmanship, or changes in design or in the amount of labor or machine time involved, regardless of whether or not a change in contract price is sought, until a request in writing has been submitted to the Owner for his approval and such approval has been granted.

3.03 SUSPENSION OF WORK - The Owner's representative and/or the Architect / Engineer shall have the authority to suspend the work, wholly or in part, for such periods as he may deem necessary due to unsuitable weather or such other conditions as are considered unfavorable for prosecution of the work, or failure on the part of the Contractor to carry out the provisions of the Contract or to supply materials meeting the requirements of the Specifications. The Contractor shall not suspend operation without the Owner's representative and/or the Architect / Engineer's permission.

3.04 INSPECTION OF WORK - All materials and each part or detail of the work shall be subject at all times to inspection by the Owner's representative and/or the Architect / Engineer, and the Contractor will be held strictly to the true intent of the Specifications in regard to quality of materials, workmanship, and the diligent execution of the Contract. Such inspection may include mill, plant, or shop inspection, and any material furnished under these Specifications is subject to such inspection. The Owner's representative and/or the Architect / Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

3.05 EXAMINATION OF COMPLETE WORK - If the Architect / Engineer requests it, the Contractor at any time before acceptance of the work shall remove or uncover such portions of the finished work as maybe directed. After examination, the Contractor shall restore said portions of the work to the standard required by the Specifications. Should the work thus exposed or examined prove acceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed shall be paid for as Extra Work, but should the work so exposed or examined prove unacceptable, the uncovering, removing and replacing shall be at the Contractor's expense.

3.06 CONTRACTOR'S SUPERINTENDENCE - The Contractor shall designate a qualified superintendent, acceptable to the Owner's representative and the Architect / Engineer, who shall be maintained on the project and give efficient supervision to the work until its completion. The superintendent shall have full authority to act in behalf of the Contractor, and all directions given to the superintendent shall be considered given to the Contractor. In general, the Architect / Engineer's instructions shall be confirmed in writing and always upon written request from the Contractor. The Contractor's superintendent or other authorized managerial level representative shall be required to attend all scheduled job meetings.

1. Delays caused by the contractor due to lack of attendance at a scheduled job meeting and/or lack of coordination will be at the contractor's expense. This would be inclusive of all costs related to the delayed work caused by a given prime contractor and/or its subcontractors affecting any contractor (prime or sub) on the Project.

3.07 LANDS BY OWNER - The Owner shall provide the lands shown on the Drawings upon which the work under the Contract is to be performed and to be used for rights-of-way for access. Any unreasonable delay in furnishing these lands by the Owner shall be deemed proper cause for adjustment in the Contract Amount and/or in the time of completion.

3.08 LANDS BY CONTRACTOR - Any additional land and access thereto, not shown on the Drawings, that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor with no liability to the Owner. The Contractor shall confine his apparatus and storage of materials and operation of his workmen to those areas described in the Drawings and Specifications and such additional areas which he may provide as approved by the Owner's representative and the Architect / Engineer.

3.09 PRIVATE PROPERTY - The Contractor shall not enter upon private property for any purpose without obtaining permission, and he shall be responsible for the preservation of all public property, trees, monuments, etc. along and adjacent to the street and/or right-of-way, and shall use every precaution necessary to prevent damage or injury thereto. He shall use suitable precautions to prevent damage to pipes, conduits, and other underground structures, and shall protect carefully from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

3.10 ASSIGNMENT OF CONTRACT - The Contractor shall be bound by Section 109 of the General Municipal Law relating to the assignment of Public Contracts. The following extracts are directed to the attention of bidders:

A. "Prohibiting any contractor, to whom any contract shall be let, granted or awarded, as required by law, from assigning, transferring, conveying, subletting or otherwise disposing of the same, or of his right, title or interest therein, or his power to execute such contract, to any other person or corporation without the previous consent in writing of the officer, board or agency awarding the contract."

B. "If any contractor, to whom any contract is let, granted or awarded, as required by law, by any officer, board or agency of a political subdivision, or of any district therein, shall without the previous written consent specified in subdivision one of this section, assign, transfer, convey, sublet or otherwise dispose of such contract, or his right, title or interest therein, or his power to execute such contract, to any other person or corporation, the officer, board or agency which let, made, granted or awarded such contract shall revoke and annul such contract, and the political subdivision or district therein, as the case maybe, and such officer, board or agency shall be relieved and discharged from any and all liability and obligations growing out of such contract to such contractor, and to the person or corporation to which such contract shall have been assigned, transferred, conveyed, sublet or otherwise disposed of, and such contractor, and his assignees, transferees or sub lessees shall forfeit and lose all moneys, theretofore earned under such contract, except so much as may be required to pay his employees. The provisions of this section shall not hinder, prevent or affect any assignment by any such contractor for the benefit of his creditors made pursuant to the laws of this state."

3.11 REMOVAL OF CONSTRUCTION EQUIPMENT, TOOLS AND SUPPLIES - At the termination of this Contract, before acceptance of the work by the Architect / Engineer , the Contractor shall remove all of his equipment, tools and supplies from the property of the Owner. Should the Contractor fail to remove such equipment, tools and supplies, the Owner shall have the right to remove them.

3.12 SUSPENSION OF WORK BY OWNER - The work or any portion thereof may be suspended at any time by the Owner provided that he give the Contractor five (5) days' written notice of suspension, which shall set forth the date on which work is to be resumed.

3.13 OWNER'S RIGHT TO CORRECT DEFICIENCIES - Upon failure of the Contractor to perform the work in accordance with the Contract Documents, including any requirements with respect to the Schedule of Completion, and after five (5) day's written notice to the Contractor and receipt of written approval from the Architect / Engineer, the Owner may, without prejudice to any other remedy he may have, correct such deficiencies.

3.14 OWNER'S RIGHT TO TERMINATE CONTRACT AND COMPLETE THE WORK - The Owner shall have the right to terminate the employment of the Contractor after giving ten (10) days' written notice of termination to the Contractor in the event of any default by the Contractor and upon receiving written notice from the Architect / Engineer certifying cause for such action. In the event of such termination, the Owner may take possession of the work and of all materials, tools and equipment thereon and may finish the work by whatever method and means he may select. It shall be considered a default by the Contractor whenever he shall:

A. Declare bankruptcy, become insolvent, or assign his assets for the benefit of his creditors.

B. Disregard or violate important provisions of the Contract Documents or Architect / Engineer's Instructions, or fail to prosecute the work according to the agreed progress schedule, including extensions thereof.

C. Fail to provide a qualified superintendent, competent workmen or sub-contractors, or proper materials, or fail to make prompt payment therefore.

3.15 CONTRACTOR'S RIGHT TO SUSPEND WORK OR TERMINATE CONTRACT - The Contractor may suspend work or terminate Contract upon ten (10) days' written notice to the Owner and the Architect / Engineer, if an order of any court, or other public authority causes the work to be stopped or suspended for a period of ninety (90) days through no act or fault of the Contractor or his employees.

3.16 RIGHTS OF VARIOUS INTERESTS - Wherever work being done by the Owner's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Architect / Engineer to secure the completion of the various portions of the work in general harmony.

3.17 SEPARATE CONTRACTS - The Owner may let other contracts in connection with the work of the Contractor. The Contractor shall cooperate with other Contractors with regard to storage of materials and execution of their work. It shall be the Contractor's responsibility to inspect all work by other Contractors affecting their work and to report to the Architect / Engineer any irregularities which will not permit them to complete their work in a satisfactory manner. Their failure to notify the Architect / Engineer of such irregularities shall indicate the work of other Contractors has been satisfactorily completed to receive their work. The Contractor shall not be responsible for defects of which he could not have known, which develop in the work of others after the work is completed. It shall be the responsibility of the Contractor to measure the completed work in place and report to the Architect / Engineer immediately any difference between completed work by others and the Drawings.

It is the responsibility of each Prime Contractor under separate contracts associated with the same project to coordinate the activities of their respective subcontractors and the work between other prime contracts that affects their scope of work in a cooperative manner to prevent delays and/ or additional costs to the extent practical. It will be the responsibility of the Architect/ Engineer in conjunction with the Owner to evaluate delays and/or additional costs should they arise. Owner reserves the right to withhold payment per Section 7.05 as deemed necessary.

3.18 CONTRACTORS OWN WORKFORCE – The Contractor shall perform with their own workforce contract work amounting to not less that 25 percent of the original total contract price, except those items designated by the County as "Specialty Items" so performed shall be deducted from the original total contract price before computing the amount of work required to be performed by the Contractor with their own workforce.

A. "Their own workforce" shall be construed to include only worker's employed and paid directly by the Contractor and equipment owned or rented by the Contractor, with or without operators.

B. "Specialty Items" shall be construed to be limited to work that requires specialized knowledge, craftsmanship or equipment not ordinarily available in contracting organizations qualified to bid on the contract as a whole and, in general, are to be limited to minor components of the overall contract.

The following list of "Specialty Items" are work items which require special skills and comprise work which is not relevant to the general type of construction contained in this contract:

NONE

CONTRACTOR'S OWN WORKFORCE
(This form must be submitted with the Contractor's bid proposal)

Pursuant to Section 3.18 – Contractor's Own Workforce, of the General Conditions, the Contractor submitting a bid proposal acknowledges that they will perform a minimum of 25% of the work with their own workforce as follows:

Task	Value of Work
Total Value of Workforce	
Percentage of Total Bid	%

3.19 SUBCONTRACTS - Within 48 hours (not counting Saturdays, Sundays or holidays) after the time of bidding, the Contractor shall submit in writing to the Owner for approval by the Architect / Engineer the names of the sub-contractors proposed for the work. After such approval, sub-contractors may not be changed except at the request of, or with the approval of the Architect / Engineer. The Contractor is responsible to the Owner for the acts and omissions of his sub-contractors, and of their direct and indirect employees, to the same extent as he is responsible for the acts and omissions of his employees. The Contract Documents shall not be construed as creating any contractual relation between any sub-contractor and the Owner. The Contractor shall bind every sub-contractor by the terms of the Contract Documents.

A. For convenience of reference and to facilitate the letting of Contracts and sub-contracts, the Specifications are separated into titled sections. Such separations shall not, however, operate to make the Architect / Engineer an arbiter to establish limits to the contracts between Contractor and sub-contractors.

3.20 WORK DURING AN EMERGENCY - The Contractor shall perform any work and shall furnish and install any materials and equipment necessary during an emergency endangering life or property. In all cases he shall notify the Architect / Engineer of the emergency as soon as practicable, but he shall not wait for instructions before proceeding to properly protect both life and property.

3.21 ORAL AGREEMENTS - No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.

SECTION 4 - MATERIALS AND WORKMANSHIP

4.01 MATERIALS FURNISHED BY THE CONTRACTOR - All materials sold to the Owner and/or used in the work shall meet the requirements of the respective Specifications, and no material shall be used until it has been approved by the Architect / Engineer. All materials not otherwise specifically indicated shall be furnished by the Contractor.

4.02 MATERIALS FURNISHED BY THE OWNER - Materials specifically indicated shall be furnished by the Owner. The fact that the Owner is to furnish material is conclusive evidence of its acceptability for the purpose intended, and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in material furnished by the Owner, he shall notify the Architect / Engineer. Unless otherwise noted or specifically stated, materials furnished by the Owner, which are not of local occurrence, are considered to be f.o.b. the nearest railroad station. The Contractor shall be prepared to unload and properly protect all such material from damage or loss. The Contractor shall be responsible for material loss or damage after receipt of material at the point of delivery.

4.03 STORAGE OF MATERIALS - Materials shall be so stored as to insure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces, and not on the ground, and/or they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Request for payment of offsite storage shall be in accordance with Section 7.02.c.

4.04 CHARACTER OF WORKMEN - The Contractor shall at all times be responsible for the conduct and discipline of his employees and/or any sub-contractor or persons employed by sub-contractors. All workmen must have sufficient knowledge, skill, and experience to perform properly the work assigned to them. Any foreman or workman employed by the Contractor or sub-contractor who, in the opinion of the Architect / Engineer, does not perform his work in a skillful manner, or appears to be incompetent or to act in a disorderly or intemperate manner shall, at the written request of the Architect / Engineer, be discharged immediately and shall not be employed again in any portion of the work without the approval of the Architect / Engineer.

4.05 REJECTED WORK AND MATERIALS - All materials which do not conform to the requirements of the Contract Documents, are not equal to samples approved by the Architect / Engineer, or are in any way unsatisfactory or unsuited to the purposes for which they are intended, shall be rejected. Any defective work whether the result of poor workmanship, use of defective materials, damaged through carelessness or any other cause shall be removed within ten (10) days after written notice is given by the Architect / Engineer, and the work shall be re-executed by the Contractor. The fact that the Architect / Engineer may have previously overlooked such defective work shall not constitute an acceptance of any part of it.

A. Should the Contractor fail to remove rejected work or materials within ten (10) days after written notice to do so, the Owner may remove them and may store the materials.

B. Correction of Faulty Work after Final Payment shall be in accordance with Paragraph 7.18.

4.06 MANUFACTURER'S DIRECTIONS - Manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer unless herein specified to the contrary.

4.07 CUTTING AND PATCHING - The Contractor shall do all necessary cutting and patching of the work that may be required to properly receive the work of the various trades or as required by the Drawings and Specifications to complete the structure. He shall restore all such cut or patched work as directed by the Architect / Engineer. Cutting of existing structure that shall endanger the work, adjacent property, workmen or the public, shall not be done unless approved by the Architect / Engineer and under his direction.

4.08 CLEANING UP - The Contractor shall remove from the Owner's property, and from all public and private property, all temporary structures, rubbish and waste materials resulting from his operation or caused by his employees, and shall remove all surplus materials leaving the site smooth, clean and true to line and grade. If all materials described above related to a contractor’s scope of work are not removed in a timely manner, the contractor will be issued a written notice of unsatisfactory demobilization / cleanup which shall be addressed within 24 hours. If satisfactory corrective action is not completed within 24 hours the County shall have the situation remedied as deemed necessary by the County and the contractor shall be responsible for the costs through a withhold of retention and/or invoice to the contractor equaling the cost to clean up the construction site.

4.09 GUARANTY PERIOD - The Contractor shall warrant all materials and equipment furnished and all work performed by him for a period of two (2) years, or for such longer period as may be specified in the Detailed Specifications, from the date of written acceptance of the work or "Notice of Substantial Completion". (Note: The warranty period, in regard to any facilities or portions thereof which are essentially completed and have been accepted for use and occupancy by the Owner shall commence with the date of the "Notice of Substantial Completion".)

A. Correction of Faulty Work after Final Payment shall be as provided in Paragraph 7.18, except that where a period longer than two years is specified in the Detailed Specifications, such longer period shall apply.

B. As a condition precedent to final payment, the Contractor shall execute a guaranty in the form provided by the Architect / Engineer warranting the work under his contract free from defects of materials and workmanship and agreeing to replace at his expense any materials or equipment found defective within the two years after final acceptance by the Owner, and to replace any other work found unsatisfactory because of settlement or displacement within such longer period as may be specified in the Detailed Specifications, and to do such replacing or corrective work at such times and in such manner as not to interfere with the Owner's use of the premises.

SECTION 5 - INSURANCE, BONDS, SAFETY, ETC.

5.01 INSURANCES REQUIRED - Insurance shall be procured by the successful bidder before commencing work, no later than seven (7) days after notice of an award and maintained without interruption for the duration of the contract, in the kinds and amounts specified below.

	Each Occurrence	Aggregate
A. Commercial General Liability	$1,000,000	$2,000,000
Premises and Operations		
▪ Products and Completed Operations	$2,000,000	
▪ Independent Contractors	Not Excluded or Limited	
▪ Contractual	Not Excluded or Limited	
▪ Broad Form Property Damage	Not Excluded or Limited	
▪ X,C,U	Not Excluded or Limited	
B. Automobile Liability, including	$1,000,000 CSL	
▪ Owner		
▪ Hired		
▪ Non-Owned		
C. Excess Umbrella Liability		$5,000,000
D. Worker's Compensation	Statutory (IC-1, Section IX)	
E. New York Disability	Statutory (IC-1, Section IX)	

F. Builders' Risk-All Risk. The policy is required. The Prime Contractors shall procure and maintain Insurance against loss by fire, extended coverage, vandalism and malicious mischief upon all work in place and all materials and equipment stored on and off the building site. This insurance shall be in an amount equal to the full insurable value at all times and shall be for the benefit of the Owner and each Prime Contractor, as their interest might appear. The Policy must carry the County of Erie as the named insured.

5.02 CERTIFICATES OF INSURANCE

A. Shall be made to the "County of Erie"
95 Franklin Street, Buffalo, New York, 14202.

B. Coverage must comply with all requirements of "Instructions for County of Erie Standard Insurance Certificate" page IC-1 of this Project Manual.

C. Executed by an insurance company and/or agency or broker which is licensed by the Insurance Department of the State of New York. If executed by a broker, notarized copy of authorization to bind or certify coverage must be attached.

D. All policies in which the County of Erie is named as an additional insured shall provide that:

E. "The insurance company or companies issuing the policies shall have no recourse against the County of Erie for payment of any premiums or for assessments under any form of policy."

F. "The insurance shall apply separately to each insured (except with respect to the limit of liability)."

G. During the term of this Agreement, the Contractor agrees to maintain insurance coverage consistent with the insurance requirements attached hereto. Contractor agrees to name the “County of Erie” as an additional insured on all such insurance policies, and to provide to the County Attorney certificate(s) of insurance evidencing such insurance coverage prior to the commencement of any work on the Project. All insurance certificates shall be subject to approval by the office of the County Attorney.

5.03 PERFORMANCE, LABOR AND MATERIAL PAYMENT BOND - The Contractor shall furnish, as required elsewhere in the General Conditions. A Performance, Labor and Material Payment Bond in a sum equal to the Contract amount, including change order values. The form of such bond shall be the Owner’s Standard Performance, Labor and Material Payment Bond which is exhibited elsewhere in the Project Manual. The bond shall be written with a Surety Company licensed or otherwise authorized to do business in the State of New York.

The Performance Bond shall be submitted by the successor bidder no later than 7 days after notice of an award.

5.04 PATENTS AND ROYALTIES - If any design, device, material or process covered by letters, patent or copyright is used by the Contractor, he shall provide for such use by legal agreement with the Owner of the patent or a duly authorized licensee of such owner, and shall save harmless the Owner from any and all loss or expense on account thereof, including its use by the Owner.

5.05 PERMITS - All permits and licenses necessary for the prosecution of the work shall be secured by the Contractor as required and/or as directed by the Architect/ Engineer as described within the Project Documents.

The Contractor shall apply for and obtain a Building Permit from the Department of Public Works prior to the start of the work. The Contractor shall also submit proof of NYS Worker’s Compensation and NYS Disability Benefit’s Insurance on forms as prescribed by NYS. No work shall be started until the County has issued a valid Building Permit to the Contractor. Building in violation of a valid Building Permit is cause for the County to issue a Stop Work Order. The Contractor will not be required to submit stamped drawings as part of the application process. Building Permit Forms are included in Appendix B.

5.06 LAWS TO BE OBSERVED - The Contractor shall give all notices and comply with all Federal, State and Local Laws, Ordinances and Regulations in any manner affecting the conduct of the work, and all such order and decrees as exist, or may be enacted by bodies or tribunals having any jurisdiction or authority over the work, and shall indemnify and save harmless the Owner against any claim or liability arising from or based on, the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

5.07 PROTECTION OF PROJECT AND PUBLIC - The Contractor shall provide adequate signs, barricades, flashing and/or red lights and take all necessary precautions for the safety of the public and the protection of the work against loss or damage. All barricades and obstructions shall be protected at night by signal lights which shall be kept burning or flashing from sunset to sunrise. Barricades shall be of substantial construction and shall be so painted or coated as to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades or detours exist. The Contractor shall inform himself as to conditions likely to be applicable to the site and shall, in any case, provide such watchmen, guards, watchdogs or other services as appear necessary to protect the work and workmen from damage or injury from vandalism, malicious mischief or other hazard.

5.08 TRAFFIC SAFETY AND CONVENIENCE - The Contractor shall at all times so conduct his work as to insure the least possible obstruction to traffic and to minimize inconvenience to the general public and the residents in the vicinity of the work, and to insure the protection of persons and property in a manner satisfactory to the Architect/Engineer. No road or street shall be closed to the public except with the permission of the Architect/Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by the Contractor to insure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches and irrigation ditches, which shall not be obstructed except as approved by the Architect/Engineer under conditions assuring satisfactory detour and/or by-pass facilities.

5.09 CROSSING UTILITIES - When new construction crosses highways, railroads, streets or utilities under the jurisdiction of State, County, City or other public agency, public utility or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission must be filed with the Owner before any work is done. The Contractor will be required to furnish a release from the proper authority before final acceptance of the work.

5.10 SANITARY PROVISIONS - The Contractor shall provide and maintain such sanitary accommodations for the use of his employees and those of his subcontractors as may be necessary to comply with the requirements and regulations of the local and State departments of health and as directed by the Architect/Engineer.

SECTION 6 - PROGRESS AND COMPLETION OF WORK

6.01 NOTICE TO PROCEED - Following authorization of the Contract by the Owner, written Notice to Proceed with the work shall be given to the Contractor. The Contractor shall begin and shall prosecute the work regularly and uninterruptedly thereafter (unless otherwise directed in writing by the Owner) with such labor force as to secure the completion of the work within the time stated in the Proposal.

6.02 LAYING OUT WORK

A. The Contractor shall, immediately upon entering the project site for the purpose of beginning work, locate all general reference points and take such action as is necessary to prevent their destruction. He shall lay out his own work and be responsible for all lines, elevations and measurements of structures, grading, paving, utilities and other work executed by him under the Contract. He must exercise proper precaution to verify figures shown on drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.

B. The Contractor shall be responsible for correlation of all work.

6.03 METHODS OF MATERIALS

A. If alternate methods or materials from those specified are accepted and approved by the Owner, the Contractor shall be responsible for the equivalent operation and performance, and the proper installation in the space designated of the substituted material or system.

B. When job conditions require reasonable changes in indicated locations and arrangements, such changes shall be made without extra cost to the Owner.

6.04 CONTRACT TIME - The Contractor shall complete, in an acceptable manner, all of the work contracted for in the time stated in the Agreement, commencing with the date of Notice to Proceed.

6.05 PROGRESS SCHEDULE

A. The Contractor shall prepare a progress schedule to indicate the proposed progress of work. The progress schedule shall be in the form of a bar graph or other approved method.

B. The progress schedule shall be submitted to the Owner for application of work sequencing approval within fourteen (14) days of Notice to Proceed.

6.06 CHANGES IN THE WORK - The Owner may, as the need arises, order changes in the work through additions, deletions, or modifications without invalidating the Contract. Compensation and time of completion affected by the change shall be adjusted at the time of ordering such change, and shall be specified in a written Change Order approved by the Owner on recommendation by the Architect / Engineer.

6.07 EXTRA WORK - New and unforeseen items of work found to be necessary and which cannot be covered by any item or combination of items for which there is a Contract price shall be classed as Extra Work. The Contractor shall do such Extra Work and furnish such materials as may be required for the proper completion or construction of the whole work contemplated upon written Change Order by the Owner on recommendation by the Architect / Engineer. Materials to be incorporated into the project shall be sold to the Owner separately and apart from the furnishing of work, labor and other items required for the construction of the project in the same manner and with the same effect as if specified in the Bid Documents. In the absence of such written order, no claim for Extra Work shall be considered. Extra Work shall be performed in accordance with these Specifications where applicable and work not covered by the Specifications or special provisions shall be done in accordance with the best practice as approved by the Architect / Engineer. Extra Work required in an emergency to protect life and property shall be performed by the Contractor as required.

6.08 EXTENSION OF CONTRACT TIME - A delay beyond the Contractor's control occasioned by an Act of God, or act or omission on the part of the Owner by strikes, lockouts, fire, etc. may entitle the Contractor to an extension of time in which to complete the work as determined by the Architect / Engineer, provided, however, that the Contractor shall immediately give written notice to the Architect / Engineer of the cause of such delay. If an extension of time is granted, the approved Progress Schedule shall be updated and a change order issued covering the extension of time. The Contractor's signature on the change order shall signify the Contractor's acceptance of the updated Progress Schedule.

6.09 USE OF COMPLETED PORTIONS - The Owner shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the completion of uncompleted work or causes refinishing of completed work, the Contractor shall be entitled to such extra compensation, or extension of time or both, as the Owner and Contractor may agree.

6.10 EXISTING UTILITIES - The operation of existing active utilities, including gas, water, sewer, electric and telephone lines, shall not be disturbed except as required to connect new utilities thereto.

6.11 SITE CONDITIONS - The Contractor shall maintain the site so as to avoid unhealthful, hazardous and noisome conditions. He shall maintain excavations free of the accumulation of excess water.

6.12 PREVENTION OF DELAY - The Contractor agrees that there will be no interruption in the performance of the work under this agreement due to labor strife or unrest. The Contractor and his subcontractors will not employ on the work, any labor, materials or means whose employment or utilization during the course of this contract may tend to or in any way cause or result in strikes, work stoppages, delays, suspension of work or similar troubles by workmen employed by the Contractor or his subcontractors or by any of the trades working in or about the buildings and premises where work is being performed under this contract, or by other contractors or their subcontractors pursuant to other contracts, or on any other building or premises owned or operated by the County of Erie. Any violation by the Contractor of this requirement will be considered proper and sufficient cause for the County, through the Department of Public Works – Office of the Commissioner to consider such interruption a breach of the agreement and to cancel the contract without any penalty to the County, and to recover any damages from the Contractor that may have been caused by labor strife and unrest.

SECTION 7 - MEASUREMENT AND PAYMENT

7.01 DETAILED BREAKDOWN OF CONTRACT AMOUNT - Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall within ten (10) days of receipt of Notice to Proceed submit a complete breakdown of the Contract Amount showing the value assigned to the materials sold to the Owner for, and separately, the labor and other costs assigned to each part of the work, including any allowances as part of the base bid. Upon approval of the breakdown of the Contract Amount by the Architect / Engineer, it shall be used as the basis for all Requests for Payment.

Allowances and any future approved change orders shall be shown on the request for payment worksheets as separate line items. Request for payment worksheet can be found in specification Section 011500 – Application For Payment.

7.02 REQUESTS FOR PAYMENT

A. The Contractor may submit periodically, but not more than once a month, a Request for Payment for work done. The Contractor shall furnish the Architect / Engineer all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the work. Each Request for Payment shall be computed on all items listed in the Detailed Breakdown of Contract Amount, less 5% to be retained until substantial completion and acceptance of the work and less previous payments. See Specification Section 011500 ‘Application for Payment’ for additional information

B. Upon the issuance of a letter of substantial completion by the Owner, the Contractor shall prepare a detailed listing of all items of work or corrections yet to be performed on the project with monetary value assigned to each. He shall forward said list to the Architect/Engineer and the Owner, who may modify such list at their discretion. The Owner reserves the sole right to reduce the retention previously withheld to any amount equal to two times the value of the outstanding work items and corrections yet to be performed with monetary values assigned to each as determined by the Owner, 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 Owner shall promptly pay, upon receipt of a requisition, for these items less amount necessary to satisfy any claims, liens or judgments against the Contractor which have not been suitably discharged. Where unit prices are specified, the Request for Payment shall be based on the quantities expended.

C. For purposes of monitoring the payment progress, the Contractor shall submit a detailed breakdown on a proper County form indicating items of work and separately listing labor and material cost for each item.

D. The Owner will make payments for stored materials at off-site locations provided said materials are suitably stored (a) in public warehouses, or (b) at the contractor's place of business or other location approved by the Owner, in which case the materials shall be segregated and have affixed to them in prominent locations placards stating "this material is the property of the County of Erie". All materials to be considered for payment shall be stored within a 100 mile radius of the County of Erie. The materials shall be completely covered by insurance. The required insurance shall be an all-risk policy, in an amount equal to the full insurable value at all times and shall be for the benefit of the County of Erie (named insured). In addition to the necessary insurance, a notarized affidavit shall be provided at the time of request for payment, indicating the location of the stored material. The Owner shall have the right of access to inspect the material at any time during normal working hours. All other appropriate insurance requirements and procedures as stipulated in Section 5 of the Erie County General Conditions shall apply.

7.03 ARCHITECT / ENGINEER'S ACTION ON A REQUEST FOR PAYMENT - Within ten (10) days of submission of any Request for Payment by the Contractor, the Architect / Engineer shall:

A. Approve the Request for Payment as submitted; or

B. Approve such other amount as he shall decide is due the Contractor, informing the Contractor in writing for his reasons for approving the amended amount; or

C. Withhold the Request for Payment, informing the Contractor in writing of his reasons for withholding it.

7.04 OWNER'S ACTION ON AN APPROVED REQUEST FOR PAYMENT - Within forty-five days (45) from the date of approval of a Request for Payment by the Architect / Engineer, the Owner shall:

A. Pay the Request for Payment as approved, or

B. Pay such other amount in accordance with Paragraph 7.05 as he shall decide is due the Contractor, informing the Contractor and the Architect / Engineer in writing of his reasons for paying the amended amount; or

C. Withhold payment in accordance with paragraph 7.05, informing the Contractor and the Architect / Engineer of his reasons for withholding payment.

7.05 OWNER'S RIGHT TO WITHHOLD PAYMENT OF AN APPROVED REQUEST FOR PAYMENT - The Owner may withhold payment in whole or in part on an approved Request for Payment to the extent necessary to protect himself from loss on account of any of the following causes discovered subsequent to approval of a Request for Payment by the Architect / Engineer :

A. Defective work.

B. Evidence indicating the probable filing of claims by other parties against the Contractor.

C. Failure of the Contractor to make payments to sub-contractors, material suppliers and suppliers of labor.

D. Damage to another contractor.

E. Lack of progress of work for by a contractor that affects the progress of work of other contractors under a separate contract related to the same project. The County reserves the right to withhold payment until work has progressed to a satisfactory manner and/or to compensate other contractors under separate contracts related to any project delays. This would include but not be limited to; labor, materials and equipment associated with any necessary rework, compensation for extended completion of work duration, extended schedule of work, mobilization/ remobilization of other prime contractors.

The above does not include unforeseen work and/or unforeseen conditions that add time and/or costs to the project that is unavoidable by contractors.

7.06 RESPONSIBILITY OF THE CONTRACTOR - Unless specifically noted otherwise, the Contractor shall furnish and pay for all materials and services and perform all the work described by the Contract Documents, or shall have all materials and services furnished and all the work, performed at his expense. It shall also be the Contractor's responsibility to pay for:

A. Replacement of survey benchmarks, reference points and stakes provided by the Owner under Paragraph 2.15.

B. Lands by Contractor provided in accordance with Paragraph 3.08.

C. Insurance obtained in accordance with Paragraph 5.01.

D. Fire Insurance obtained in accordance with Paragraph 5.01.

E. Performance Labor and Material Payment Bond obtained in accordance with Paragraph 5.04.

F. Royalties required under Paragraph 5.05.

G. Permits and Licenses required of the Contractor and all subcontractors.

H. All applicable taxes and fees, including sales and compensating use taxes except sales and compensating use taxes of the State of New York and of cities and counties of the State, on all materials sold to the Owner under this Contract.

7.07 PAYMENT FOR UNCORRECTED WORK - Should the Architect / Engineer direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Amount shall be made to compensate the Owner for the uncorrected work.

7.08 PAYMENT FOR REJECTED WORK AND MATERIALS - The removal of work and materials rejected under Paragraph 4.05 and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor, and he shall pay the cost of the replacement of work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.

A. Removal of rejected work or materials and storage of materials by the Owner in accordance with Paragraph 4.05 shall be paid by the Contractor within thirty (30) days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal and after ten (10) days' written notice being given by the Owner of his intent to sell the materials, the Owner may sell the materials at auction or at private sale and shall pay to the Contractor the net proceeds there from after deducting all the costs and expenses that should have been borne by the Contractor.

7.09 PAYMENT FOR EXTRA OR OMITTED WORK - The Contractor after receiving instructions to submit a proposal for Extra Work or for the Omission of Work shall within ten (10) days, except in an emergency endangering life and/or property, furnish the Architect / Engineer with a Change Order Proposal for transmittal to the Owner. The Contractor shall also submit to the Architect / Engineer an itemized sheet or sheets showing the labor, and separately, the materials to be sold to the Owner involved in the Change Order, together with (1) a maximum mark-up for overhead and profit of 15% on the sum of the aforementioned where the work is to be performed solely by the Contractor, or (2) a maximum mark-up for overhead and profit of 10% by a sub-contractor where the work is to be performed by the sub-contractor with a 5% maximum mark-up by the contractor on the total sub-contractor cost proposal. The Architect / Engineer shall promptly review the change order proposal and forward it to the Owner, together with his recommendations. The addition to or deduction form the contract amount shall be a sum for the materials sold to the Owner and a separate sum for labor and other costs, based on the Contractor's proposal, approved by the Architect / Engineer and accepted by the Owner.

The County is due a credit or a reduction in the total contract amount for omitted work that was originally included in the scope of work; whether it was included in the base bid or by an increase contract amendment (change order). The work previously agreed upon that is not performed by the contractor will result in a decrease contract amendment (credit change order) at a negotiated price between the design consultant (if applicable), The County and contractor.

If the decrease contract amendment is in relation to a previously approved change order, the Overhead and Profit percentages as described above will still apply to the portion of said change order that is being credited. If the credit change order is related to work removed from the original base scope of work associated with the Project at the direction of the Owner, a reasonable Overhead and Profit (O&P) percentage is to be included as part of the change order. It is understood that the Contractor submits bid proposal price at their discretion and therefore the O&P percentage will be proposed by the Contractor and negotiated or approved by the Owner and/or Architect/ Engineer.

7.10 PAYMENT FOR WORK SUSPENDED BY THE OWNER - If the work or any part thereof shall be suspended by the Owner, the Contractor will then be entitled to payment for the cost of all work done on the portions so abandoned, but such payment shall not exceed the value of such portion of the work as established under Paragraph 7.01.

7.11 PAYMENT FOR WORK BY THE OWNER - The cost of the work performed by the Owner in removing construction equipment, tools and supplies in accordance with Paragraph 3.11 and in correcting deficiencies in accordance with Paragraph 3.13 shall be paid by the Contractor.

7.12 PAYMENT FOR WORK BY THE OWNER FOLLOWING HIS TERMINATION OF THE CONTRACT - Upon termination of the Contract by the Owner in accordance with Paragraph 3.14, no further payments shall be due the Contractor until the work is completed. If the unpaid balance of the Contract Amount shall exceed the cost of completing the work, including all overhead cost, the excess shall be paid to the Contractor. If the cost of completing the work shall exceed the unpaid balance, the Contractor shall pay be difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Owner, and approved by the Architect / Engineer.

7.13 PAYMENT FOR WORK TERMINATED- Upon suspension of the work or termination of the Contract by the Owner, the Contractor shall recover payment from the Owner for the work performed as negotiated with the owner. See Section 7.09 above for additional information.

7.14 PAYMENT FOR SAMPLES AND TESTING OF MATERIALS - Samples furnished in accordance with Paragraph 2.11 shall be furnished by the Contractor at his expense.

A. Testing of samples and materials furnished in accordance with Paragraph 2.11 shall be arranged and paid for by the Owner unless otherwise specified in the detailed specifications.

7.15 RELEASE OF LIENS - The Contractor shall deliver to the Owner a complete release of all liens arising out of this Contract before the retained percentage or before the final Request for Payment is paid.

7.16 ACCEPTANCE AND FINAL PAYMENT - When the Contractor shall have completed the work in accordance with the terms of the Contract Documents, the Architect / Engineer shall certify his acceptance to the Owner and his approval of the Contractor's final Request for Payment, which shall be the Contract Amount plus all approved additions less all approved deductions and less previous payments made. The Contractor shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the work, following which the Owner shall accept the work and release the Contractor except as to the conditions of the Performance Bond, any legal rights of the Owner, required guarantees, and Correction of Faulty Work after Final Payment, and shall authorize payment of the Contractor's final Request for Payment. The Contractor must allow sufficient time between the time of completion of the work and approval of the final Request for Payment for the Architect / Engineer to assemble and check the necessary data.

7.17 TERMINATION OF CONTRACTOR'S RESPONSIBILITY - The Contract will be considered complete when all work has been finished, the final inspection made by the Architect / Engineer, and the project accepted in writing by the Owner. The Contractor's responsibility shall then cease, except as set forth in his Performance Bond, as required by the Guaranty Period in accordance with Paragraph 4.09, and as provided in Paragraph 7.18.

7.18 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT - The approval of the final Request for Payment by the Architect / Engineer and the making of the final payment by the Owner to the Contractor shall not relieve the Contractor of responsibility for faulty materials or workmanship. The Owner shall promptly give notice of faulty materials or workmanship and the Contractor shall promptly replace any such defects discovered within two years from the date of written acceptance of the work, or within such longer period as may be incorporated in the Detailed Specification Requirements. The Architect / Engineer shall decide all questions arising under this paragraph.

SECTION 8 - WAGES AND LABOR CONDITIONS

8.01 WORKING HOURS - No laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by this contract shall be permitted or required to work more than eight hours in any one calendar day or more than five days in any one week, except in the emergencies set forth in the Labor Law.

8.02 WAGE RATES AND SUPPLEMENTS - Each laborer, workman or mechanic, employed by the Contractor, subcontractor or other person about or upon such public work, shall be paid not less than the prevailing rates of wages and shall be provided supplements not less than the prevailing supplements, as determined by the Industrial Commissioner of the State of New York (see "Information for Bidders").

8.03 DISCRIMINATION

A. In the hiring of employees for the performance of work under this contract or any subcontract hereunder, no Contractor, subcontractor nor any person acting on behalf of such Contractor or subcontractor, shall by reason of race, creed, color 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. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, color or national origin;

C. There may be deducted from the amount payable to the Contractor by the County of Erie under this contract a penalty of five dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract;

D. This contract may be cancelled or terminated by the County of Erie and all moneys due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this section of the contract; and

E. The aforesaid provisions of this section covering every contract for or on behalf of the County of Erie for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.

F. General Regulation No. 1 as issued by the State Commission Against Discrimination states: "It is hereby agreed by and between the parties hereto that every contractor and subcontractor engaged in the public work described in this contract shall post and maintain at each of his establishments and at all places at which the public work described hereunder is being conducted, the Notice of the State Commission Against Discrimination indicating the substantive provision of the Law Against Discrimination, where complaints may be filed, and other pertinent information. Such Notice shall be posted in easily accessible and well lighted places customarily frequented by employees and applicants for employment."

G. Provision of the State Law Against Discrimination also prohibits discrimination in employment because of age.

8.04 EQUAL EMPLOYMENT OPPORTUNITY

In the performance of work under Erie County Contracts or any subcontract, no Contractor, subcontractor, nor any person acting on behalf of such Contractor, or subcontractor, in their employment practices, shall by reason of race, color, national origin, sex, age, religion, marital status, or disability discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates. Reference Title VI of the Civil Rights Act of 1964 (42 USC 200d).

Executive Order 11245, 30 Federal Regulation 12319 (1965) (Equal Opportunity Clause)

During the performance of Erie County contracts, the Contractor agrees:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, national origin, sex, age, religion, marital status, or disability. The Contractor will take affirmative action to ensure the applicants are employed and employees are treated during employment, without regard to their race, color, national origin, sex, age, religion, marital status, or disability. 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.

B. The Contractor agrees to appoint an Equal Employment Opportunity (EEO) officer whose function will be to assure that said Contractor participates fully and effectively in the County of Erie Affirmative Action Program in compliance with the requirements of the County of Erie Contract.

C. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the EEO officer setting forth the provisions of this non-discrimination clause.

D. 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, national origin, sex, age, religion, marital status, or disability.

E. 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 by the organization EEO officer, advising the labor union or workers' representative of the Contractor's commitment under Executive Order No. 11246 on September 24, 1965 and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

F. The Contractor will file, by the fifteenth day of each month with the EEO office and the Contracting Agency, a monthly manpower utilization report of his work force on the Erie County project for the preceding month, broken down by racial groups, craft status, and job classification and including (a) the number of minority workers he has secured and (b) the type of On-the-Job Training he has provided on the Erie County project, the classification of said minority participants (apprentices, journeymen, and trainees), the specific crafts in which they have received training, and the number of hours they have worked.

G. The Monthly Manpower Utilization Report shall be attached to every Request for Payment Application. Payment Requests will not be reviewed unless the manpower utilization report is attached.

H. The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965 and all relevant rules, regulations, and orders of an Erie County Contract and the Erie County Affirmative Action Program.

I. In the event of the Contractor's non-compliance with the nondiscrimination clauses of an Erie County Contract or with any such rules, regulations, or orders that contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Erie County contracts in accordance with the procedures authorized in Executive Order No. 11246 or as otherwise provided by law.

J. The Contractor will include the provisions of paragraphs a. through i. in every subcontract or purchase order unless specifically exempted by the rules, regulations, or orders, of an Erie County contractual agreement, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontractor or purchase order as the Contracting Agency may direct as a means of enforcing such provisions including sanctions for non-compliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with litigation with any subcontractor or vendor as a result of such direction by the Contracting Agency, the Contractor may request the County of Erie to enter into such litigations to protect the interests of the County of Erie.

8.05 MONITORING

A. The EEO Office has the responsibility of administering the Monitoring Program for the County of Erie and its Affirmative Action Program. During the monitoring of an organization, the EEO Office shall receive the full cooperation of the Contracting Agency in dealing with organizations needing remedial actions.

B. The objective of the County of Erie's Monitoring Program is a systematic review, by the EEO Office, of the Contractor's performance in meeting the goals of minority utilization at each level of his work force. There will be two basic results from the County of Erie's monitoring process:

C. Acceptable achievement or progress, according to the program for construction contracts on County of Erie projects, toward the County of Erie's goal of 13.2% minority manpower utilization, and in addition, the County of Erie's goal for the utilization of women in the area of construction shall be in accordance with the U.S. Department of Labor's goal of 6.9%.

   1. Insufficient progress toward goals according to the program; if an organization is found to be unwilling to correct deficiencies after a recommended non-compliance investigation, the County of Erie may:

      a. Summon the Contractor to a hearing

      b. Withhold progress payments in part or in full

      c. Cancel the Contract

      d. Bar the award of future contracts until the Contractor can demonstrate that he will comply

D. The County of Erie's Monitoring Program will consist of both Off-Site and On-site monitoring.

E. Off-Site monitoring program shall consist of Monthly Employment Utilization reports submitted via LCPtracker. Due to the regular turnover of the work force of a construction Contractor and because of Federal Compliance reporting requirements, all Contractors and subcontractors must submit these monthly reports to the Erie County EEO Office and the Contracting Agency. These reports will state an employee's EEO identification trade, classification, hours worked, and the percentage of completion for each County of Erie project for each reporting month.

F. On-Site monitoring, for the purpose of verifying these monthly reports, will be dependent on but not limited to:

   1. The compliance status of each Contractor for each County of Erie construction project.

   2. Length of the contract, subcontract, or grant and its percentage of completion.

   3. Size of the labor force of the organization.

   4. Degree of employment opportunity the County of Erie contract, subcontract, or grant will offer to minority workers.

   5. Past record of affirmative action achievement of the organization.

   6. Past record of affirmative action compliance performance under the EEO Office.

G. The EEO Office will have an ongoing Master File, dealing with each Contractor or subcontractor for each County of Erie construction project participated in for reference of the past performance of each Contractor.

H. In the event any deficiencies are found during an Off-Site or On-Site analysis, organization officials shall receive a summary of these deficiencies and the audits made for each reporting month. Any violations found will be fully explained and discussed with the Contractor or subcontractor. During discussions with the EEO Office and the Contracting Agency, alternative solutions to particular problems will be explored. At this time, attempts will be made to obtain the Contractor's agreement to take action by specified dates and a duplicate copy of the agreement will be sent to the Contractor or subcontractor.

8.06 COUNTY OF ERIE MINORITY AND WOMEN'S BUSINESS ENTERPRISE COMMITMENT
Minority/Women's Business & Service-Disabled Veteran Owned Business Utilization Commitment:

A. Erie County's Minority and Women's Business Utilization Local Law. No. 6, 1987 requires all prime contractors awarded construction contracts let by the County of Erie to exemplify Affirmative Action and subcontract to minority and women's business enterprises MBE/WBE.

1. For the purpose of these regulations, the term "Minority Business Enterprise" refers to a business at least fifty-one percent (51%) of which is owned and controlled by minority group members. Minority group members are citizens of the United States who are Blacks, Hispanics, Asian Americans, American Indians, Eskimos and Aleuts. MBE's must be certified by the Erie County and/or the Erie County City of Buffalo Joint Certification Committee.

2. For the purpose of these regulations the term "Women's Business Enterprise" refers to a business at least fifty-one percent (51%) of which is owned and controlled by women. WBE's must be certified by Erie County and/or the Erie County/City of Buffalo Joint Certification Committee.

3. For the purpose of these regulations, the term "Service-Disabled Veteran Owned Business" (SDVOB) refers to a business that is a certified service-disabled veteran-owned business under the New York State Service-Disabled Veteran-Owned Business Act.

4. Be it further understood that in order for a Minority and/or Women's Business to be certified as such by Erie County and/or the Erie County City of Buffalo Joint Certification Committee and the proposed business is incorporated, that the MBE/WBE must own and control 51% of the stock authorized to be issued by the corporation. Such authorization is made in the Certificate of Incorporation.

5. The County of Erie has determined that a goal of six percent (6%) of the total contract value represents a fair share of SDVOB utilization, ten percent (10%) of the total contract value represents a fair share of minority business utilization and two percent (2%) of the total contract value represents a fair share of women's business utilization on each construction contract awarded.

6. This local law requires that positive efforts be made by recipients of Erie County construction contracts to utilize service-disabled veteran owned business as well as minority and women owned business sources for supplies, services and professional services, allowing these sources the maximum feasible opportunity to compete for contracts, subcontracts and third-tier contracts to be performed.

7. All prime contractors awarded Erie County contracts estimated to exceed $100,000 are to take positive steps "to afford fair opportunities to SDVOB, MBE's and WBE's". Positive steps shall include but not be limited to:

   a. Utilizing a source list of bona fide service-disabled veteran owned business, minority and women's business enterprises.

   b. Solicitations of bids from SDVOB’s, MBE's and WBE's particularly of those located in Erie, Niagara, Cattaraugus and Chautauqua Counties.

   c. Giving service-disabled, minority and women firms’ sufficient time to submit proposals in response to solicitations.

d. Maintaining records showing minority and women's business enterprises and specific efforts to identify and award contracts to these companies.

e. Each contractor bidding on a County of Erie Contract is to contact SDVOB's, MBE's and WBE's and solicit bids for various aspects of each project. The contractor is to supply the County MBE/WBE office with information regarding contracts for services and products with minority and women's business enterprises and the dollar amount of each contract on the Minority Business Utilization Report.

8. Where the SDVOB, MBE or WBE is a supplier, a credit of one hundred percent (100%) of the dollar value of the subcontract between the SDVOB, MBE or WBE and the Contractor shall be awarded toward the fulfillment of the appropriate goal.

9. For purposes of this Section, a SDVOB, MBE or a WBE will be considered a supplier when it:

   a. Assumes actual and contractual responsibility to furnish supplies and/or materials and is the manufacturer of those supplies and/or materials; or

   b. Is recognized by the manufacturer involved as a distributor of its supplies and/or materials; and

   c. Owns or leases a warehouse, yard, building or other facility which is necessary and customary to carry out the purported function of the business; and

   d. Distributes, delivers and services the supplies and/or materials with its' own staff.

10. Where an SDVOB, MBE or WBE performs a sales function, which is customarily performed as a distinct and necessary part of the supply process, a credit of twenty-five percent (25%) of the dollar value of the subcontract between the MBE or WBE, the Contractor will be awarded toward the fulfillment of the appropriate goal.

11. Where the SDVOB, MBE or WBE performs a function or service which is commercially unnecessary, such as acting as a passive conduit in the supply process of duplicating a service provided by others in the same chain of supply from manufacturer to purchaser, no credit will be granted toward the appropriate goal.

12. The qualifications set forth in subsections, above of this Action shall be certified by the Erie County Equal Employment Opportunity Office.

13. All bidders shall submit a properly executed SDVOB/Minority/Women Business Enterprise Utilization Report Part A with their bid proposal at the time of bid.

14. In the event of a joint venture participating in this SDVOB and/or MBE/WBE Program, the Joint Venture Disclosure Affidavit must be submitted with the Minority/Women Business Enterprise Utilization - Prime Contractor Affidavit. Only to the extent that a minority and/or women's business enterprise contributes to and is paid for its participation in a Joint Venture will that dollar amount be credited towards the 10% and/or 2% respectively goal of minority/women's participation in the County of Erie MBE/WBE Program.

15. SDVOB's, MBE's and WBE's must be certified before their participation may be credited toward the respective 6%, 10% and 2% goal. Where the proposed MBE and/or WBE are not certified by Erie County or the Erie County/City of Buffalo Joint Certification Committee, the appropriate Certification Disclosure Affidavit must be filed with the appropriate Erie County/City of Buffalo Department. Forms and lists of certified MBE's/WBE's may be obtained by calling 858-7542.

16. Should a bidder conclude that they would be unable to satisfy the SDVOB and/ or the MBE/WBE goal, the bidder shall submit a properly executed applicable Waiver Request Form with their bid proposal. Waivers shall be granted only where the availability of SDVOB's, MBE's and/or WBE's in the market area of the project is less than the respective 6%, 10% and 2% goals.

17. Sufficient information must be provided on the SDVOB, Minority and/or Women's Business Enterprise Utilization Waiver Request to ascertain whether a waiver should be approved, conditionally approved or rejected by the Department of Public Works on the advice of the EEO Office.

18. A waiver approval limits the contractor's obligation to solicit SDVOB's, MBE's and/or WBE's for a particular project only. It does not relieve the contractor of MBE/WBE utilization for any other County of Erie project on which he submits a bid.

19. Conditional approval of the waiver request makes it necessary for the contractor to continue soliciting SDVOB's, MBE's and/or WBE's for contracting purposes, after he has been declared the low bidder.

20. A MBE/WBE Utilization Waiver Request will be rejected if the contractor:

    a. Fails to provide information on the SDVOB, Minority and/or Women's Business Enterprise Utilization Report at the time of the Bid opening.

    b. Provides fraudulent information on the SDVOB or MBE/WBE reports.

    c. Fails to make an honest good faith effort to recruit a contractor with SDVOB or MBE's/WBE's.

    or

    d. Takes any other action which is contrary to the spirit and intent of the law.

21. The information provided on the SDVOB/MBE/WBE Waiver Request and the SDVOB/MBE/WBE Utilization Report will be considered concurrently to determine if a waiver should be approved, conditionally approved or rejected.

22. The successful low bidder shall submit to the Erie County SDVOB/MBE/WBE Office within 15 business days of the bid opening, a schedule for service-disabled veteran owned business and minority/women's business enterprise participation as applicable, listing the business enterprise with whom the contractor intends to subcontract, specifying the agreed price to be paid for such work, and identifying in detail the contract item(s) or parts to be performed by each business enterprise.

23. A letter of intent to enter into a subcontract or purchase agreement, contingent upon contract award, indicating the agreed upon price and scope of work, shall be provided, signed by both the contractor and the SDVOB/MBE/WBE business enterprise. The prime contractor shall not substitute or delete the listed service-disabled veteran owned business minority and/or women's business enterprise without the written consent of Erie County.

24. In the event that the SDVOB/MBE/WBE goal for the contract is not met, the contractor shall provide sufficient documentation to establish that every positive effort was made to identify, solicit and negotiate with SDVOB, MBE's and WBE's in pursuit of the goal. Such documentation includes, but is not limited to advertisement in minority-focus media, written contact with minority contractors' associations and community groups and copies of direct solicitation of individual minority businesses indicating sufficient time to prepare quotations. Where an SDVOB/MBE/WBE is rejected due to price, the contractor shall provide documentation of the successful bidder's price along with evidence showing the work to be performed in the same, and not a reduced portion thereof.

25. The contractor shall provide to the Erie County EEO Office copies of all subcontracts and/or purchase agreements with minority/women's business enterprise within 15 days of contract award. A Notice to Proceed with construction shall not be issued until acceptable documentation is received.

26. Upon completion of the work, the contractor shall provide a properly executed SDVOB/Minority/Women Business Enterprise Utilization Report – Part A-Part D, certifying the total dollar amounts expended to the MBE's & WBE's subcontracted with. This report and all cancelled checks necessary to verify certification are to be submitted to the Erie County EEO Office, prior to final payment request.

27. In the event a contractor fails to comply with these provisions, Erie County may:

    a. Summon the contractor to a hearing.

    b. Withhold progress payments in part or in full.

    c. Cancel the contract.

    d. Bar award of future contracts until the contractor can demonstrate that he will comply.

28. It is, hereby, the County of Erie's commitment to assure that on all contracts awarded, prime contractors expend a fair share of the contract with bona fide Minority and Women Owned business enterprises in accordance with the goals set forth in the Minority Business Utilization Local Law, No. 1, 1987.

29. It is, hereby, the County of Erie's commitment to assure that on all contracts awarded, prime contractors expend a fair share of the contract with bona fide Service-Disabled Veteran Owned Business enterprises in accordance with the goals set forth in the fide Service-Disabled Veteran Owned Business Utilization Local Law, No. 3, 2023.

30. Failure to comply with the provisions of the law shall constitute a break of contract subject to all remedies available to Erie County.

31. The Prime Contractor and all Service-Disabled Veteran Owned Business, Minority and Women Owned Business subcontractors are bound by all requirements as put forth in the County of Erie Standard General Conditions and all modifications thereto contained in these Contract Specifications.

8.07 COUNTY OF ERIE EXECUTIVE ORDER #13 "PAY EQUITY CERTIFICATION ON COUNTY CONTRACTS"

A. During the term of this Contract, the agency shall comply with Executive Order 13 (2014), and the Agency shall make such records available, upon request, to the County's Division of Equal Employment Opportunity for review. The County shall have the right, upon reasonable notice and at reasonable times, to inspect the books and records of the agency, its offices and facilities, for the purpose of verifying information supplies in the Erie County Equal Pay Certification and for any other purpose reasonably related to confirming the Agency's compliance with Erie County Executive Order No. 13 (2014). Violation of the provisions of Executive Order 13 (2014) which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

1. Refer to Appendix C for the Erie County Executive Order #13 and Equal Pay Certification Form.

2. The Equal Pay Certification Form shall be submitted with the bid proposal.

8.08 COUNTY OF ERIE EXECUTIVE ORDER #18 "FIRST SOURCE HIRING POLICY FOR COUNTY CONSTRUCTION PROJECTS"

A. During the term of this Contract, Erie County Executive Order No. 18 (2017) may apply. Violation of the provisions of Executive Order 13 (2014) which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

1. Refer to Appendix D of the General Conditions for the Erie County Executive Order #18, Rules and Regulations, Erie County Local and Disadvantaged Worker Compliance Certification, County of Erie Executive Order #18 Monitoring and Reports, and First Source Policy Targeted Zip Codes.

   a. First Source Policy Targeted Zip Codes are provided for information only and subject to change.

   b. Be advised that the Contractor will be required to provide monthly reports demonstrating good faith effort to meet the required work force goals using LCPtracker web-based software.

2. The Erie County Executive Order #18 Attestation and Statement of Workforce shall be submitted with the bid proposal.

B. Requirements of Executive Order No.18 are as shown in Appendix D of the General Conditions and are summarized below. It should be noted that Executive Order No. 18 does not apply to work hours performed by individuals residing outside of New York State per the language of the Executive Order.

   a. 100% of the workforce must be from New York State's 8 Western Counties.
   b. 70% of the workforce must be from County of Erie.
   c. 30% of the workforce must be from the identified zip codes included in Appendix D and/or one of the following qualifying disadvantaged status as described below
      i. Area Medium Income
      ii. Released from prison in last 10 years
      iii. Participated in Temporary Assistance for Needy Families Program
      iv. Participated in Supplemental Nutritional Assistance Program
      v. Was unemployed for a least 12 consecutive months.

SECTION 9 – ACCOUNTABILITY

9.01 The Contractor shall be fully accountable for his performance under this contract and agrees to answer under oath all questions relevant to the performance thereof and to any transaction, act, or omission had, done or omitted in connection therewith if called before any Judicial, County or State Officer or agency empowered to investigate the Contract or its performance.

9.02 It shall be the contractor's responsibility for providing and maintaining daily sign-in books for all persons on the project site including; employees, visitors or otherwise at all times during the duration of the project until the project has been completed. Copies of the sign in books are to be provided to the Owner if requested.

9.03 The Electrical Contractor (or General Contractor when there is no associated Electrical Contract associated with a given Project) will be responsible to replace all existing smoke detectors within the construction work area with heat detectors, when applicable, at the direction of the Owner.

9.04 It is the Contractor's responsibility to perform all work in accordance with the Occupational Safety and Health Administration (OSHA) rules and requirements. All contractors are to ensure that all employees assigned to the Project as defined within the Project Documents, have been OSHA 10 certified. Proof of certification to be uploaded to the LCPtracker software system.

9.05 Contractor to ensure that at least one (1) approved fire extinguisher device is on the contraction site at all times. Additional fire extinguishers to be provided at the locations, as applicable, as follows:

- At each stairway on all floor levels where combustible materials have accumulated.
- In every storage and construction shed.
- Additional portable fire extinguishers shall be provided where special hazards exist, such as the storage and use of flammable and combustible liquids

SECTION 10 - THE ERIE COUNTY WORKFORCE DEVELOPMENT AND DIVERSIFICATION NEW YORK STATE CERTIFIED WORKER TRAINING PROGRAM

10.01 County of Erie Local Law No. 3-2018

COUNTY OF ERIE
LOCAL LAW INTRO NO. 3 - 2018

A LOCAL LAW in relation to a requirement for New York State Certified Worker Training Programs by contractors and subcontractors under construction contracts, as defined herein, with the County of Erie.

BE IT ENACTED BY THE ERIE COUNTY LEGISLATURE AS FOLLOWS:

Section 1. Legislative Intent.

The Erie County Legislature hereby finds, declares and determines that:

A. New York Labor Law Section 816-b specifically authorizes this Local Law.

B. There has been a long and productive history of partnership between labor and management in the training of workers in New York State.

C. New York State Certified Worker Training Programs are valuable educational and training tools for the local workforce by reducing reliance on out-of-area labor for construction projects.

D. New York State Certified Worker Training Programs provide opportunities to residents in this area through training and education for skilled jobs.

E. These skilled jobs allow us to reinvest our taxpayer dollars spent on local construction projects so that local workers and local tax dollars remain within the local community.

F. It would be valuable to encourage labor and business/industry to participate in New York State Certified Worker Training Programs to meet the increased need for trade persons while providing residents the means to earn a better living and fostering the local and regional economies.

G. It is valuable for local government to encourage broad participation in such New York State Certified Worker Training Programs by the residents of Erie County and to foster the equal opportunity of men and women of all races and backgrounds to participate in order to enhance workforce development and diversification, and to prevent exclusionary practices which have historically excluded women and minorities.

H. The New York State Department of Labor sets objective standards and provides oversight for New York State Certified Worker Training Programs. These Programs are important because they require on-the-job training and classroom training, and provide objective industry standards. In effect these programs lead to a standardized, cost effective and skilled local workforce.

I. Nothing in this Local Law should be read to abrogate the duty of Erie County with respect to its MBE/WBE requirements.

Section 2. Short Title.

This Local Law shall be known as "The Erie County Workforce Development and Diversification New York State Certified Worker Training Program."

Section 3. Definitions.

A. "New York State Certified Worker Training Program" shall mean: a state registered and regulated apprenticeship program through the New York State Department of Labor that has been approved by the New York State Commissioner of Labor in accordance with Article 23 of the New York Labor Law, that includes the following standards:

   i. An organized, written plan in place that embodies the terms and conditions of employment, and the training and supervision of one or more workers;

   ii. A schedule of wages to be paid to the worker consistent with the skills required and approved by the New York State Department of Labor;

   iii. Equal opportunity and affirmative action plans;

   iv. Workforce development and diversification goals to ensure that the contractor will diligently work toward a minority workforce goal of 30% minority and female participation combined in project personnel including trades people, trainees, journeymen, apprentices and supervisory staff;

   v. A minimum of ten percent (10%) of the total construction workers. Trades people, trainees, journeymen, and apprentices employed at any given time on a particular project by any and all contractors or subcontractors must be consist of persons participating in a New York State Certified Worker Training Program.

vi. In all cases, such Certified Apprenticeship Training Program must be specific to the type and scope of work which is being performed and must have a graduation rate of at least thirty percent (30%) as determined by the New York State Department of Labor.

B. "Commissioner" shall mean the Commissioner of the Erie County Department of Public Works.

C. "Construction contract" shall mean projects with a value in excess of $250,000 where Erie County is a direct or indirect party to the contract which includes more than an incidental amount of construction type activity intended to benefit the public, including all work which is necessary, incidental or connected with the execution of the contract which is performed by construction workers. A public entity need not be party to the construction contract. A construction contract includes: projects that Erie County funds directly, projects that Erie County funds indirectly by providing funds to a separate entity to perform the construction type activity; privately financed construction projects specifically built with the intent of leasing them to any Department of Erie County government; and construction projects built under Erie County's direction and later paid for with Erie County funds.

D. "Construction subcontract" shall mean any subcontract between a contractor who has a construction contract as defined in Section 3, subdivision C above.

E. "Contractor" or "subcontractor" shall mean a contractor or subcontractor that directly employs construction workers, as defined below, under a construction contract or construction subcontract, as defined herein, for which a New York State Certified Worker Training Program is required.

F. "Construction worker" shall mean an individual directly involved in the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise providing for any building, facility, roads, highways, bridges, or physical structure of any kind, but does not include professional services employees or those construction workers for which a New York State Certified Worker Training Program does not exist.

Section 4. Requirements.

A. Any contractor, prior to entering into a construction contract as set forth in section 3 (C) above, or any subcontractor entering into a construction subcontract with a contractor who has a construction contract with the County of Erie is required to have in place and provide written proof of same at the time of bid a New York State Certified Worker Training Program, either internally to the contractor or subcontractor and/or through an organization servicing several contractors or subcontractors, appropriate for the type and scope of work to be performed.

B. Any contractor or subcontractor, as defined herein, shall strive to meet the minimum workforce development and diversification goals set forth in section 3(A) (iv) above. Such contractors and/or subcontractors shall provide the Commissioner or designated compliance officer with the following:

i. A monthly workforce census and such other employment and/or payroll records necessary to verify an attempt to achieve the workforce development and diversification goals set forth in Section 3(A)(iv) above.

ii. Access to and cooperation with the project compliance officer to review records on-site and/or at worksite premises to validate attempts to achieve the workforce development and diversification goals set forth in Section 3(A)(iv) above.

iii. With bid submission, a statement committing to providing apprenticeship training opportunities to workers, as well as details of workforce diversification recruiting program directed at attracting candidates to fill positions to meet the minimum workforce development and diversification goals set forth in Section 3(A)(iv) above.

Section 5. Rules & Regulations.

As of the date this Local Law becomes effective, the Commissioner of the Erie County Department of Public Works shall promulgate such rules and regulations that are lawful, necessary and appropriate to implement, enforce or otherwise carry out the purposes of this Local Law, provided that the Legislature, by simple majority, has not voted to disapprove such rule or regulation within sixty (60) days from the Commissioner's written notice to the Legislature that such rule or regulation has been promulgated.

Section 6. Equal Employment Monitoring.

There shall be an Independent Monitor to report on the compliance of each County contractor and subcontractor with this Local Law's workforce development and diversification goals. The Commissioner of DPW shall develop regulations that provide for the compensation of the Independent Monitor.

The Monitor shall monitor and review every facet of construction to report what percentage of the goals that are established for minority and female participation are met or exceeded. The Monitor shall report to the Equal Employment Opportunity Office on the compliance of each contractor and subcontractor with the workforce development and diversification goals.

The Monitor shall file monthly reports with the Equal Employment Opportunity Office regarding the actual workforce development and diversification goals, including reporting all instances of non-compliance; make appropriate recommendations to the Equal Employment Opportunity Office when non-compliance is evident with supportive documentation; develop a database of the workforce of each contractor and subcontractor to provide a visual format of each contractor's workforce, both monthly and year-to-date cumulative totals on each construction contract.

Section 7. Compliance.

The Director of Erie County Division of Equal Employment shall ensure that all contractors and subcontractors entering into a construction contract as it is defined herein, maintain records which prove that each construction worker as it is defined herein, signs in and out at the beginning and end of each day, listing next to his or her name his or her craft, and status as journeyman or apprentice, if applicable.

Section 8. Penalties.

Violation of any provision of this Local Law shall constitute cause, grounds or other legal justification for termination of any contractual agreement with any contractor or subcontractor engaged in a construction contract or construction subcontract with the County, in accordance with County and state laws, rules and regulations governing the termination of such contractual agreements.

Section 9. Severability.

If any clause, sentence, paragraph, subdivision, section or part of this Local Law or the application thereof, to any person, individual, corporation, firm, partnership, entity or circumstance, shall be adjudged by any court of competent jurisdiction to be invalid or unconstitutional such order of judgment shall not affect, impair, or invalidate the remainder thereof, but shall be confined in its operation to the clause, sentence, paragraph, subdivision, section or part of this Local Law or in its application to the person, individual, corporation, firm, partnership, entity, or circumstance directly involved in the controversy in which such judgment or order shall be rendered.

Section 10. Applicability.

This Local Law shall apply to construction contracts advertised for bids on or after the effective date with the following condition:

Apprenticeship agreements currently in place as of the effective date of this Local Law which are still in probationary status or apprenticeship agreements which were in probationary status during the period preceding the specific trade's program length as set forth in the New York State Prevailing Wage Schedule, shall be exempt from the 30% apprenticeship graduation requirement specified in Section 3 (A) (vi) for the period measured from the date the apprenticeship program is registered with the New York State Department of Labor plus the specific trade's program length plus two years.

Section 11. Effective Dates.

This Local Law shall take effect 30 days after the filing with the Secretary of State, in accordance with Section 27 of the New York State Municipal Home Rule Law.

SPONSORS: PATRICK BURKE
APRIL N.M. BASKIN
JOHN BRUSSO

10.02 Rules and Regulations Adopted by the Erie County Commissioner of Public Works Regarding Local Law No. 3-2018

RULES AND REGULATIONS ADOPTED BY THE ERIE COUNTY COMMISSIONER OF PUBLIC WORKS REGARDING: COUNTY OF ERIE LOCAL LAW NO. 3-2018

A LOCAL LAW in relation to a requirement for New York State Certified Worker Training Programs by contractors and subcontractors under construction contracts, as defined herein, with the County of Erie.

Pursuant to Section 5 of Erie County Local Law No. 3-2018, "the Commissioner of the Erie County Department of Public Works shall promulgate such rules and regulations that are lawful, necessary and appropriate to implement, enforce or otherwise carry out the purposes of this Local Law..." Such rules and regulations are as follows:

1. Definitions.

“Bidders” – an individual or entity which submits a formal Bid for a Construction Contract, as hereinafter defined.

“Bids” – formal bids submitted for a Construction Contract, as hereinafter defined, in accordance with New York General Municipal Law.

“Commissioner” – Erie County Commissioner of Public Works

“Construction Contract” – a contract for a Project which includes more than an incidental amount of construction-type activity performed by persons in trades or careers for which there exists an NYSCATP, as hereinafter defined.

“Contracting Agency” – a department, division, board, agency or office of the County, an entity undertaking a Project that Erie County funds indirectly, or an entity undertaking a Project with the specific intent of leasing the completed Project to the County, which solicits and receives Bids for a Construction Contract.

“Local Law” – Erie County Local Law 3-2018

“Monitoring Agency” – the Erie County Equal Employment Opportunity Office

“New York State Certified Apprentice Training Program” or “NYSCATP” - a state registered and regulated apprenticeship program(s) approved by the Commissioner of the New York State Department of Labor in accordance with Article 23 of the Labor Law and the Rules and Regulations thereto.

“Prime Contractor” – the party with whom the Contracting Agency contracts with on a Project.

“Project” – the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise of any building, facility, roads, highways, bridges, or physical structure of any kind, estimated by the Contracting Agency as having a cost to complete in excess of $250,000, for which the County is a direct or indirect party to a Construction Contract. Projects include those: that Erie County funds directly, either in whole or in part; that Erie County funds indirectly, either in whole or in part, by providing funds to a separate entity to perform the construction-type activity; privately financed construction projects specifically built with the intent of leasing the completed project to Erie County; and construction projects built under Erie County’s direction and later paid for with Erie County funds.

“Rules” – these rules and regulations promulgated by the Commissioner pursuant to the Local Law.

“Subcontractor” – A subcontractor to a Prime Contractor.

"Workforce" – the total worker hours anticipated on the Construction Contract to be undertaken by workers in careers or trades for which there exists an NYSCATP.

2. Rules and Regulations.

A. Each Contracting Agency shall include in its bid specifications provisions for the implementation of the Local Law and these Rules. Bids shall demonstrate a Bidder's ability to comply with the Local Law and these Rules and in the event that Bidder is a successful Prime Contractor on a Construction Contract.

B. Bidder shall submit as part of the Bid a copy of the certification of approval of the NYSCATP by the New York State Department of Labor which will be used by the Bidder in connection with the Construction Contract. Such NYSCATP shall be a NYSCATP registered by the NYS Commissioner of Labor which will be utilized by the Bidder on the Construction Contract by the Bidder as a Prime Contractor or by the Bidder's Subcontractor(s).

C. As part of its' Bid, Bidder shall provide a written plan demonstrating how apprentices will be utilized by the Bidder as Prime Contractor or by Subcontractor(s) to the Bidder as Prime Contractor. Such plan shall include at a minimum, but not be limited to the following:

   i. An organized, written plan in place that embodies the terms and conditions of employment, training and supervision of one or more apprentices;

   ii. A schedule of wages to be paid to the apprentices consistent with the skills required and approved by the New York State Department of Labor;

   iii. Equal employment opportunity and affirmative action plans.

   iv. Demonstration that ten percent (10%) of the Workforce of the Prime Contractor (inclusive of the workforce utilized by any Subcontractor(s) to the Bidder) shall consist of persons participating in New York State Certified Apprentice Training Programs.

D. In the alternative Bidder may provide a statement as to the inapplicability of apprenticeship participation on the Prime Contract and the related subcontracts due to the lack of career opportunities in NYSCATP approved by New York State Department of Labor Commissioner or that the magnitude of the Construction Contract would make use of apprentices impracticable. In the event that Bidder provides a statement that there is a lack of such career opportunities or the use of apprentices on the Construction Contract is impracticable, said Bidder may not be deemed non-responsive by virtue of the submission of such a statement, as determined by the Monitoring Agency. Applicability of this section will be viewed within the total Workforce of each Prime Contract and not as a function of each subcontract of the Construction Contract as a whole.

E. As part of its' Bid, Bidder shall provide affirmation of its commitment toward acceptable achievement or progress towards the County of Erie workforce development and diversification goal in all construction contracts of thirty percent (30%) minority and female participation combined in project personnel including trades people, trainees, journeymen, apprentices and supervisory staff.

F. Contracting Agency may determine prior to the advertisement of bids for the Project or prior to the award of Bids that the nature of the Construction Contract does not provide an adequate opportunity for the use of NYSCATP for such reasons including, but not limited to, that:

   i. 75% or more of the value of the Construction Contract involves material, equipment and/or supplies; or

ii. There is a lack of NYSCATP approved by the Department of Labor for at least 75% of the work hours anticipated to be spent on construction-type activity involved in the Construction Contract; or

iii. The Construction Contract is in response to an emergency condition; or

iv. The Project is estimated to cost less than $250,000 or the Bid amount is less than $250,000; or

v. None of the bids received were from Bidders who had an NYSTACP.

G. All Bids shall be reviewed by the Monitoring Agency within 10 business days of delivery of the Bids by the Contracting Agency to the Monitoring Agency. A Contracting Agency shall not reject any Bid as being non-responsive to the requirements of the Local Law and these Rules, unless the Monitoring Agency, within 10 business days of receipt of Bids from the Contracting Agency, provides the Contracting Agency with a written report recommending non-responsiveness of the Bidder and the reasons therefore. Determination of a Bidder's compliance with the Local Law and these Rules shall be the responsibility of the Monitoring Agency.

H. The Contracting Agency is permitted to require within the Bid specifications for a Project, a reasonable fee for the Prime Contractor to hire an independent monitor to review and report on the diversification gals of the Local Law

3. Effect

These Rules and Regulations shall become effective immediately. No Rule or Regulation promulgated herein shall be disapproved by the Erie County Legislature unless and until such time as the public, following 10 days advertised notice, is given the opportunity to comment upon such rule or regulation.

COUNTY OF ERIE DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

BID DATE: _____

TODAY'S DATE: _____

ERIE COUNTY MINORITY/WOMEN BUSINESS ENTERPRISE & SERVICE-DISABLED VETERAN-OWNED BUSINESS UTILIZATION REPORT- PART A

COMPANY: _____

AUTHORIZED REPRESENTATIVE: _____

ADDRESS: _____

TELEPHONE NUMBER: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

I. List actions taken to identify, solicit, and contact Minority Business Enterprise (MBE), Women Business Enterprise (WBE) & Service-Disabled Veteran-Owned Business (SDVOB) to bid on subcontracts for this project.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

II. List all bona-fide Minority/Women Business Enterprise & Service-Disabled Veteran-Owned Businesses, sub-contractors, suppliers, professional personnel, solicited, contracted, or presently negotiating a contract in accordance with the minority business utilization goal set forth by the County of Erie.

MBE/WMB/SDVOB OWNED FIRMS	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTIFICATION	CONTRACT EXECUTED	REASON IF CONTRACT NOT AWARDED
NAME: _____ ADDRESS: _____ CITY, STATE: _____ TELEPHONE: _____ IRS #: _____				YES NO	

MBE/WMB/SDVOB OWNED FIRMS	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTIFICATION	CONTRACT EXECUTED	REASON IF CONTRACT NOT AWARDED

NAME: _____ YES

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____ NO

IRS #: _____

MBE/WMB/SDVOB OWNED FIRMS	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTIFICATION	CONTRACT EXECUTED	REASON IF CONTRACT NOT AWARDED

NAME: _____ YES

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____ NO

IRS #: _____

MBE/WMB/SDVOB OWNED FIRMS	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTIFICATION	CONTRACT EXECUTED	REASON IF CONTRACT NOT AWARDED

NAME: _____ YES

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____ NO

IRS #: _____

MBE/WMB/SDVOB OWNED FIRMS	SUPPLY/ SERVICE	AMOUNT OF PROPOSAL	PRIOR CERTIFICATION	CONTRACT EXECUTED	REASON IF CONTRACT NOT AWARDED

NAME: _____ YES

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____ NO

IRS #: _____

III. Assistance offered by contractor to MBE's/WBE's/SDVOB's as to bonding, union requirements obtaining work capital, etc.

1._____

2._____

3._____

4._____

5._____

6._____

IV. Total Dollar Amount to be subcontracted to:

Minority Business Enterprise(s). $_____

Women Business Enterprise(s). (if applicable) $_____

Service-Disabled Veteran-Owned Business(s). $_____

V. Total Amount of Bid $_____

VI. MBE Percent (%) of project bid: (EC goal is 10%) _____%

WBE Percent (%) of project bid: (EC goal is 2%) _____%

SDVOB Percent (%) of project bid: (EC goal is 6%) _____%

VII. YOU MUST ATTACH COPIES OF RELEVANT CORRESPONDENCE AND DOCUMENTS, INCLUDING RETURN RECEIPTS UPON LOW BIDDER STATUS TO EEO.

_____ _____
SIGNATURE OF AUTHORIZED REPRESENTATIVE DATE

VIII. CONTRACTOR'S DESIGNATED EQUAL OPPORTUNITY OFFICER (EEO)

_____ _____
NAME DATE

COUNTY OF ERIE MINORITY/WOMEN BUSINESS ENTERPRISE
& SERVICE-DISABLED VETERAN-OWNED BUSINESS UTILIZATION REPORT PART – B

Certificate of Expenditures at 30% Completion of Project

Contractor: _____ Contractor Name: _____

I. List all bona-fide minority/women business enterprises & Service-Disabled Veteran-Owned Business, subcontractors, suppliers, professional personnel, or joint venture firms, with whom you have entered into a binding agreement in accordance with the MWBE/SDVOB Business Utilization Goal set forth by the County of Erie. Include (minority trucking) firms that will be utilized and include an estimated dollar amount. The information must be submitted to the County of Erie when the project is 30% complete.

MBE/WBE/SDVOB OWNED FIRMS (SEE REVERSE SIDE IF MORE SPACE IS NEEDED)	TYPE OF WORK	DATE CONTRACT EXECUTED	TOTAL EXPENDED TO DATE	ESTIMATED AMOUNT REMAINING

NAME: _____

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____

IRS #: _____

MBE/WBE/SDVOB OWNED FIRMS (SEE REVERSE SIDE IF MORE SPACE IS NEEDED)	TYPE OF WORK	DATE CONTRACT EXECUTED	TOTAL EXPENDED TO DATE	ESTIMATED AMOUNT REMAINING

NAME: _____

ADDRESS: _____

CITY, STATE: _____

TELEPHONE: _____

IRS #: _____

Erie County reserves the right to require documentation including, but not limited to, cancelled checks to verify these amounts.

II. Total Dollar Amount To Be Subcontracted To:

Minority Business Enterprise(s). $_____

Women Business Enterprise(s). (if applicable) $_____

Service-Disabled Veteran-Owned Business(s). $_____

III. Total Amount Expended To Date: $_____

IV. Total Amount of Bid: $_____

V. MBE Percent (%) of project bid: _____%

WBE Percent (%) of project bid: _____%

SDVOB Percent (%) of project bid: _____%

I, _____

As an official representative of _____

do hereby certify that the information listed above is correct and complete.

_____ _____

NAME DATE

_____

TITLE

MINORITY/WOMEN BUSINESS ENTERPRISE & SERVICE-DISABLED VETERAN-OWNED BUSINESS UTILIZATION REPORT – PART C CERTIFICATION OF EXPENDITURES TO MBEs/WBEs

(To Be Completed by the Prime Contractor and submitted at the 75% payment level.)

Contractor: _____ Contractor Name: _____

MBE / WBE	PART B CONTRACT AMOUNT OR ESTIMATE	TOTAL EXPENDED TO DATE	ESTIMATED AMOUNT REMAINING
MBE's			
WBE's			
SDVOB's			

Erie County Reserves the right to require documentation, including, but not limited to, cancelled checks to verify these amounts.

I, _____

As an official representative of _____

do hereby certify that the information listed above is correct and complete.

_____ _____

NAME DATE

_____

TITLE

MINORITY BUSINESS ENTERPRISE UTILIZATION REPORT-PART D
FINAL CERTIFICATION OF EXPENDITURE TO MBE's/WBE's/SDVOB's

(To be completed by the prime contractor and submitted when contract is complete)

Erie County reserves the right to require documentation, including, but not limited to, cancelled checks to verify these amounts.

Contractor: _____ Contractor Name: _____

MBE	**TOTAL AMOUNT EXPENDED**
WBE	**TOTAL AMOUNT EXPENDED**
SDVOB	**TOTAL AMOUNT EXPENDED**

TOTAL OF ALL MBE SUBCONTRACTS $_____

TOTAL OF ALL WOMEN SUBCONTRACTS (if applicable) $_____

TOTAL OF ALL SDVOB SUBCONTRACTS $_____

FINAL MBE PERCENTAGE _____%

FINAL WBE PERCENTAGE (if applicable) _____%

FINAL SDVOB PERCENTAGE _____%

I, _____

As an official representative of _____

do hereby certify that the information listed above is correct and complete.

_____ _____
NAME DATE

_____
TITLE

AUTHORIZATION FOR RELEASE OF MWBE/SDVOSB INFORMATION TO ERIE COUNTY

I, _____ as principal officer of: _____

Hereby authorize Erie County's representative to have access to: _____

MWBE/SDVOB certification materials, filed with: _____

File documents may be released to Erie County's representative to expedite the County's M.B.E

certification process for: _____

_____ _____
SIGNED DATE

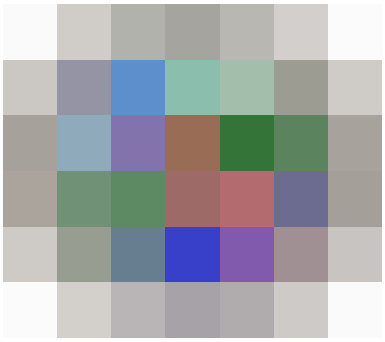
_____
TITLE

*Sworn to before me

This _____ day of _____, 2023"

_____

Notary Public / Commissioner of Deeds



County of Erie
Division of Equal Employment Opportunity
James Blackwell
Director

M/WBE WAIVER PACKET

Instructions for Prime Contractors:

The utilization of certified M/WBEs for non-commercially useful functions may not be counted towards utilization of certified M/WBEs in the Utilization Plan.
M/WBE firms must be certified by Erie County's Division of Equal Employment Opportunity ("DEEO") or by New York State ("NYS") in order to be counted towards satisfaction of M/WBE participation goals.

See the Bid Packet at or consult the DEEO for further guidance.

Erie County Division of Equal Employment Opportunity
Minority- & Women- Owned Business Enterprise (M/WBE) Utilization Waiver
Attachment A

Section 1: M/WBE Utilization Waiver Request: Letter of Explanation

The purpose of this letter is to provide the Project Manager and the Division of Equal Employment Opportunity ("DEEO") a summary of the steps taken by the Prime Contractor to obtain Minority-owned Business Enterprise ("MBE") and Women-owned Business Enterprise ("WBE") subcontractors and request a partial or full waiver from the M/WBE Participation Goals.

A summary of the steps taken, include:

(1) Break out all subcontract opportunities;
(2) Search the DEEO M/WBE Directory in those areas (a list of County certified M/WBEs can be found here: https://www3.erie.gov/eeo/). Additionally, search New York States ("NYS") M/WBE Directory (a list of NYS certified M/WBEs can be found here: https://ny.newnycotnracts.com/?TN)
(3) Solicit bids from M/WBE firms:
Document at least two (2) contacts using two (2) different methods of contact; Contact more than one (1) M/WBE in each area – the number depends on how large the contract is); and
(4) Document solicitations using the Solicitation Log (Attachment B). Keep copies of the DEEO and NYS M/WBE Directory search results, or any faxes, emails and quotes from Erie County and NYS certified M/WBEs.

The letter shall include:

(1) A short description of the scope of work involved in the contract;
(2) A short description of the subcontracting opportunities available. If there are limited subcontracting opportunities, explain the reason for the limited opportunities. For example, explaining that your company always self-performs the work is not a valid reason for granting a waiver.
(3) Results of the DEEO M/WBE Directory search.
For example: were firms available; how many; were they qualified?
(4) General results of solicitations.
For example: what happened? If a non-M/WBE bid lower than a M/WBE, did you negotiate?
    a. Include specific information about the solicitation results in areas where M/WBEs weren't obtained you want the waiver reviewer to know about
(5) Formally mention, in the letter, your request for a partial or full waiver.

Erie County Division of Equal Employment Opportunity
Minority- & Women- Owned Business Enterprise (M/WBE) Utilization Waiver Checklist

The following checklist is for the Project Manager to use when reviewing the M/WBE Utilization Waiver Request. Once the Project Manager is satisfied, they should forward the Waiver Request forms, along with this signed checked list, to the Director or Erie County's Division of Equal Employment Opportunity ("DEEO") for final review and approval/denial.

M/WBE Waiver Request Form

There are two types of requests: Full Waiver from meeting the M/WBE Goals or a Partial Waiver from meeting the full M/WBE Goals. The Waiver Request Form contains examples of Good Faith Effort documentation. However, the following checklist contains items that are required before submission to the DEEO.

☐ Letter of Explanation for Waiver Request

☐ Copies of advertisements for M/WBE Participation, if applicable

☐ Screenshots of search results (by business type) from the DEEO's and the NYS M/WBE Directory

☐ A completed Solicitation Log (See Attachment A). The log shall be broken out into separate areas for each task that is solicited (e.g. electrician, plumbing, drywall, painting, etc.). The log shall show: (1) each M/WBE firm was contacted at least twice, by two (2) different methods (e.g. phone, e-mail, fax, etc.), and (3) with whom the Requesting Firm spoke with at the potential M/WBE firm.

The following items are optional, depending on the type of request:

☐ Quotes from M/WBEs and non-M/WBEs to show the lowest responsible bidder

☐ Documentation of any negotiations Prime Contractor has/had with M/WBEs

☐ Any other documentation to show GFE, such as: e-mail correspondence, sign in sheet from any pre-bid meetings, etc.

Acknowledgement and Signature

☐ By checking this box and signing below, you affirm that all of the information requested is included in this package, and that all information is honest, true, and accurate to the best of your knowledge.

_____	_____	_____
Prime Contractor – Print Name	Prime Contractor Signature	Date

Erie County Division of Equal Employment Opportunity
Solicitation Log (Examples Included)
Attachment A

Company Name	MBE or WBE	Work Type	Location	Contact 1 - Date	Contact 1 - Type	Result	Contact 2 - Date	Contact 2 - Type	Result	Overall Result/Reason Chosen or Not/Comments
ABC	MBE	Doors and Windows	Rochester	12-Apr	Fax	Went thru, No response	14-Apr	Phone	Left VM	No response
XYZ	MBE	Doors and Windows	Syracuse	12-Apr	Fax	Went thru, May bid	21-Apr	Phone	Spoke with Kathy.	Declined to bid.
123	WBE	Doors and Windows	Albany	12-Apr	Fax	Went thru, No response	14-Apr	Phone	Spoke with Bob.	Don't offer the items.
Tough guy	MWBE	masonry	Liverpool	12-Apr	Email	Undeliverable	12-Apr	Fax	Went thru, No response	No response
Quality	WBE	masonry	Plattsburgh	12-Apr	Fax	Went thru, will respond	16-Apr	Phone	Left VM	Received quote, too high
GENERAL CON	NA	masonry	Plattsburgh	12-Apr	Email	Responded low bidder	X	X	X	See quote comparison

Erie County Division of Equal Employment Opportunity
Minority- & Women- Owned Business Enterprise (M/WBE) Utilization Plan & Waiver Request

SECTION 3: SUPPORTING DOCUMENTATION
To be considered, the Request for Waiver Form must be accompanied by the documentation requested in items 1 – 9, as listed below. Copies of the following information and all relevant supporting documentation must be submitted along with the request. Please contact the DEEO for assistance.
1. A letter of explanation setting forth your basis for requesting a partial or total waiver and detailing the good faith efforts that were made. 2. Copies of advertisements in any general circulation, trade association, and minority- and women-oriented publications in which you solicited MWBEs for the purposes of complying with your participation goals, with the dates of publication. 3. Screenshots of search results (by business description or commodity code) from Erie County's Equal Employment Opportunity MWBE Directory of all certified MWBEs that were solicited for purposes of complying with your MWBE participation goals. 4. Copies of faxes, letters, or e-mails sent to MWBE firms to solicit participation and their responses. 5. A log of solicitation results, consisting of the list of MWBE firms solicited for the contract and the outcome of the solicitations. The log should be broken out into separate areas for each task that is solicited (e.g., trucking, materials, electricians) and clearly provide a rationale for firms included on the completed Utilization Plan as well as for those not chosen. The log should show: that each MWBE firm was contacted twice by two different methods (e.g., fax and phone); who was spoken to; what was said; and the final outcome of the solicitation. 6. A description of any contract documents, plans, or specifications made available to MWBEs for purposes of soliciting their bids and the date and manner in which these documents were made available. Specifically, include information on the scope of work in the contract and a breakout of tasks or equipment, such as a schedule of values for a construction contract or a proposal or excerpt from a professional services agreement. 7. Documentation of any negotiations between you, the Contractor, and the MWBEs undertaken for purposes of complying with your MWBE participation goals. 8. Any other information you deem relevant which may help us in evaluating your request for a waiver. Examples may include sign-in sheets from any pre-bid meetings where MWBE firms were invited, attendance at MWBE forums, etc. 9. The Project Manager and/or the DEEO reserve the right to request additional information and/or documentation. **Note:** Unless a Total Waiver has been granted, Firms will be required to submit all reports and documents pursuant to the provisions set forth in the procurement and/or contract, as deemed appropriate by Erie County, to determine MWBE compliance. In cases where Erie County accepts a full or partial waiver of MWBE participation goals, the waiver request approval will be added to your file.

SIGNATURE	
Prime Contractor Acknowledgement: ☐ I certify that the information submitted herein is true, accurate and complete to the best of my knowledge and that all M/WBE subcontractors will perform a commercially useful function. **Prime Contractor/Contractor's Authorized Representative's Name** (Please Type)**:** **Prime Contractor/Contractor's Authorized Representative's Signature:**	**Date:**

Erie County Division of Equal Employment Opportunity
Minority- & Women- Owned Business Enterprise (M/WBE) Utilization Plan & Waiver Request

SECTION 4: DIVISION OF EQUAL EMPLOYMENT OPPORTUNITY INFORMATION (FOR THE DEEO USE ONLY)		
DEEO Director:	**Email:**	**Phone #:**
Signature DEEO Director:	**Date:**	
DEEO Director Acknowledgement: ☐ I certify that the information submitted herein is true, accurate and complete to the best of my knowledge and belief.		
Complete if applicable:		
DEEO Director/Authorized Rep.:	**Title:**	
Email:	**Phone #:**	
Signature of DEEO Representative:	**Date:**	
DEEO Representative Acknowledgment: ☐ I certify that the information submitted herein is true, accurate and complete to the best of my knowledge and belief.		
Comments:		

APPENDIX "B"

COUNTY OF ERIE – DEPARTMENT OF PUBLIC WORKS BUILDING PERMIT APPLICATION AND INSURANCE REQUIREMENTS

Exhibit 1B – Building Permit Application

Exhibit 2B – Contractor Insurance Requirements

MARK C. POLONCARZ
COUNTY EXECUTIVE

WILLIAM E. GEARY
COMMISSIONER OF PUBLIC WORKS

Building Permit Application

ECDPW Building Permit No.

Part I: General Information

1. Project Location and Information

Project Name:
Name and Address:
Building Name:

2. Architect/Engineer (Prime)

Name:
Address:
City, State, Zip: Phone Number:

3. Contractor

Name:
Address:
City, State, Zip: Phone Number:

4. Type of Construction or Improvement

☐New Building: Proposed use is		
☐Conversion:	Current use is	Proposed use is

☐Addition	☐Alteration	☐Repair/Replacement	☐Relocation
☐Demolition	☐Sign	☐Fence	☐Equipment
☐Other (Describe)			

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

5. Use and Occupancy Classification

☐ Assembly Group **A**	☐ Business Group **B**	☐ Education Group **E**	☐ Factory Group **F**
☐ High-Hazard Group **H**	☐ Institutional Group **I**	☐ Mercantile Group **M**	☐ Residential Group **R**
☐ Storage Group **S**	☐ Utility Group **U**		

If Assembly, Factory, High-Hazard, Institutional, Residential or Storage indicate Group subcategory type (e.g. Assembly A4) and Describe:

6. Special Inspections Required (3Rd Party) ☐ N/A

☐ Electrical	☐ Mechanical	☐ Plumbing	☐ Geotechnical
☐ Foundations	☐ Compaction	☐ Steel	☐ Equipment
☐ Asbestos	☐ Hazardous Materials	☐ Medical Specialties	☐ Other:
☐ Chapter 17 – Structural Tests and Special Inspections			

7. Dimensions of **EXISTING** Buildings**:**

Description:	Width:	Length:	Height:	No. of Stories:

8. Dimensions of **NEW** Buildings:

Description:	Width:	Length:	Height:	No. of Stories:

9. Lot Dimensions:

Description:	Width:	Length:	Height:	No. of Stories:

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

10. Description of Project: (If need additional space please attach sheets to application). For any mixed occupancy, specify in detail the nature and extent of each use.

11. Estimated Project Cost

Cost of the work to be performed, **excluding** land costs:

CONTINUE TO PART TWO: ***DO NOT WRITE BELOW THIS LINE – OFFICIAL USE ONLY***

Date Received:	Received by:	Forwarded to (for review):
Additional Approvals needed:		
☐Historic Preservation	☐Environmental Impact Statement	☐Engineering:
☐Attorney:	☐Other (explain):	☐None

Part II: Not Used

Part III: Project Location and Details

1. This application must be accompanied by two complete sets of plans and specifications. Depicting the scope of the work to be performed.

2. Location of the proposed structure or addition showing the number of stories and all exterior dimensions.

3. The distance of the proposal from all lot lines and any structure including neighboring structures.

4. The depth of the proposed foundation or footers.

5. The maximum percentage of the lot to be covered by building(s).

6. The Water Supply is: ☐Municipal Water ☐Existing Well ☐New Well

7. Site is: ☐Within Flood Plain ☐**Not** within Flood Plain
   ☐Designated as a Wetland ☐**Not** Designated as a Wetland

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

8. A drawing showing the existing conditions surrounding the project area. The drawing must include but not limited to adjacent: locations, exiting requirements, fire separations and functional areas, etc. Indicate with sufficient clarity and detail the nature and extent of the work proposed and its context. Failure to do so will interrupt the approval process until all the pertinent information is received.

9. Architectural and/or Engineered drawings are required. Drawings need to be prepared by a New York registered Architect or Licensed Professional Engineer. When the project floor area exceeds fifteen hundred (1,500) square feet and/or the project costs twenty thousand ($20,000) dollars or more.

Part IV: Notices (Read before signing):

1. Work conducted pursuant to a building permit must be visually inspected by the Code Enforcement Official and must conform to the New York State Uniform Fire Prevention and Building Code, and all applicable local, County of Erie, state and federal: laws, codes, rules and regulations.

2. In the event that there are changes to the scope of work that has been approved on the building permit, the Erie County Department of Public Works, Office of the Commissioner **must be notified immediately** of the same.

3. Prior to the start of Demolition activities the potential for exposure to asbestos and any other hazardous materials must be identified. Accordingly, an abatement plan that complies with New York State Department of Labor rules must be implemented.

4. It is the owner's responsibility to contact the Erie County Department of Public Works, Office of the Commissioner at (716) 858-8301 (Monday through Friday from 8am to 4pm) at least **72** hours before the owner and/or contractor wishes to have an inspection conducted. Inspections will be performed by appointment only. More than one inspection may be necessary. This is especially true for "internal work" which will eventually be covered from visual inspection by additional work (i.e. electrical work later to be covered by a wall).

Part V: Inspections (Read before signing):

1. **PROVISIONS SHALL BE MADE FOR INSPECTION OF THE FOLLOWING ELEMENTS OF THE CONSTRUCTION PROCESS, WHERE APPLICABLE:**
    a. Work site prior to the issuance of a permit
    b. Fire rated construction
    c. Footing and foundations
    d. Fire rated penetrations
    e. Preparation for concrete slab
    f. Solid fuel burning heating appliances, chimneys, flues or gas vents
    g. Framing
    h. Energy code compliance

i. Rough-in of all building systems, including but not limited to: Electrical, Plumbing, Gas or Fuel Piping, Security, HVAC, Temperature Controls, etc.

j. A final inspection after all work authorized by the building permit has been completed

2. DO NOT PROCEED TO THE NEXT STEP OF CONSTRUCTION IF SUCH "INTERNAL WORK" HAS NOT BEEN INSPECTED. Otherwise, work may need to be removed at the contractor's expense to conduct the interior inspection. Close coordination with the Erie County Department of Public Works, Office of the Commissioner will greatly reduce this possibility.

3. All permitted electrical work to be performed will be inspected by a certified independent third party having the prior approval of the Department of Public Works. Such inspections shall be paid for by the Contractor.

4. Owner herby agrees to allow the Erie County Department of Public Works, Office of the Commissioner to inspect the sufficiency of the work being done pursuant to this permit, provided however, that such inspection(s) is (are) limited to the work being conducted pursuant to this permit and any other non work related violations which are readily discernible from such inspection(s).

5. New York State law requires contractors to maintain Worker's compensation and Disability Insurance for their employees. The contractor, as part of their Building Permit Application, shall submit copies of their NYS Workmen's Compensation and NYS Worker's Disability Insurance Certificates on the prescribed New York State forms. The County also requires Certificates of Insurance as limited on the attached Schedule for Contractors performing work on County property whether contracted by the County or third party. Please use the attached Standard Insurance Certificate with the "County of Erie, 95 Franklin St, Buffalo, NY 14202" listed as Certificate Holder.

6. All drawings and specifications submitted with a Building Permit Application for a Building Permit shall bear the seal and signature of a NYS Registered Design Professional per the requirements of NYS law. Building Permit Applications submitted without the seal and signature of a registered NYS Design Professional will be returned as incomplete.

7. If a Certificate of Occupancy is required, the structure shall not be occupied until said certificate has been issued.

8. Work undertaken pursuant to this permit is conditioned upon and subject to any State and Federal regulations relating to Asbestos Material and any other Hazardous Material.

9. This permit does not include any privilege of encroachment in, over, under, or upon any city street or right-of-way.

10. The building permit card must be displayed so as to be visible from the street nearest to the site of the work being conducted.

I,_____, the above named applicant, hereby attest that I am the contractor for the above referenced project and affirm under the penalty of perjury that all statements made by me on this application are true.

(Contractor Signature) Date:

Please Return Completed Application to:

Erie County
Department of Public Works
95 Franklin Street, Room 1400
Buffalo, NY 14202

DO NOT WRITE BELOW THIS LINE – OFFICIAL USE ONLY

☐ Application Approved	Date:	Permit Number:
☐ Permit issued by:		Date:
CERTIFICATE OF OCCUPANCY OR COMPLIANCE MUST BE OBTAINED BEFORE OCCUPANCY USE.		
☐ Certificate of Occupancy or Use by:		Date:
☐ Application Denied by:		Date:

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

INSTRUCTIONS FOR COUNTY OF ERIE STANDARD INSURANCE CERTIFICATE

I Insurance shall be procured and certificates delivered before commencement of work or delivery of merchandise or equipment.

II CERTIFICATES OF INSURANCE

A Shall be made to the "County of Erie, 95 Franklin St, Buffalo NY, 14202"

B. Coverage must comply with all specifications of the contract.

C Must be executed by an insurance company, agency or broker, which is licensed by the Insurance Department of the State of New York If executed by a broker, notarized copy of authorization to bind or certify coverage must be attached.

III Forward the completed certificate to: County of Erie, (Department or Division) responsible for entering into the agreement for construction, purchase, lease or service.

IV Minimum coverage with limits are as follows:

Vendor Classification	A Construction and Maintenance	B Purchase or Lease of Merchandise or Equipment	C Professional Services	D Property Leased To Others Or Use Of Facilities Or Grounds	E Concession-aires Services	F Livery Services	G All Purposes Public Entity Contracts
Commercial Gen. Liab.	$1,000,000 per occ.	$1,000,000 CSL	$1,000,000 CSL	$1,000,000	$1,000,000 CSL	$1,000,000	$1,000,000 CSL
General Aggregate	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Products Completed Operations Liability	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Blanket Broad Form Contractual Liability	INCLUDE						
Contractual Liability		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Broad Form P.D.	INCLUDE						
X.C.U. (explosion, collapse, Underground)	INCLUDE						
Liquor Law				INCLUDE	INCLUDE		
Auto Liab.	$1,000,000 CSL		$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL
Owned	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Hired	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Non-Owned	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Excess/Umbrella Liab.	$5,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$5,000,000	$1,000,000
Worker's Compensation	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY
& Employer's Liability							
Disability Benefits	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY
Professional Liability			$5,000,000				
Erie County, To Be Named Add'l Insd.	Gen. Liab., Auto Liab., & Excess	Broad Form Vendors May Be Required	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess	Gen Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess

V. Construction contracts require excess Umbrella Liability limits of $5,000,000.

VI Coverage must be provided on a primary-non contributory bases.

VII. Designated Construction Project General Aggregate Limit Per Project Endorsement CG 25 03 is required.

VIII In the event the concessionaire is required to have a N.Y.S license to dispense alcoholic beverages an endorsement for liquor liability is required.

IX. Waiver of Subrogation: Required on all lines unless noted

X Transportation of people in buses, vans or station wagons requires $5,000,000 excess liability.

XI. Workers Compensation: State Workers' Compensation / Disability Benefits Law
Use Applicable Certificates Below:

Workers Compensation Forms

CE-200	Exemption
C105.2	Commercial Insurer
SI-12	Self Insurer
GSI-105.2	Group Self Insured
U-26.3	New York State Insurance Fund

DBL (Disability Benefits Law) Forms

CE-200	Exemption
DB-120.1	Insurers
DB-155	Self Insured

XII. The "ACORD" form certificate may be used in place of the County of Erie Standard Insurance Certificate, provided that all of the above referenced requirements are incorporated into the "ACORD" form certificate.

Edition Date: 3/29/2012

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

County of Erie Standard Insurance Certificate

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME	
	PHONE (A/C No, Ext)	FAX A/C No:
	EMAIL ADDRESS	
	PRODUCER CUSTOMER ID #:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO T E INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY T E POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
	☐						PERSONAL & ADV INJURY	$
	☐						GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS						BODILY INJURY (Per accident)	$
	☐ SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident)	$
	☐ HIRED AUTOS							$
	☐ NON-OWNED AUTOS							$
	☐							
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DEDUCTIBLE							$
	☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						☐ WC STATU TORY LIMITS- ☐ OTH ER-	$
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N/A					E.L. EACH ACCIDENT	$
	If yes describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L.DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER	**CANCELLATION**
County of Erie 95 Franklin St Buffalo NY, 14202	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE

X. FOR COUNTY USE ONLY:

Name of County Dept. Requesting Certificate: DPW OFFICE OF THE COMMISSIONER

Purchase Order or Contact Number: _____

Vendor Insurance Classification: _____

(Rev 3/11)

NOTE: AN INCOMPETE APPLICATION MAY DELAY THE TIMELY ISSUANCE OF YOUR PERMIT; PLEASE ENTER N/A IF A SECTION IS NOT APPLICABLE

INSTRUCTIONS FOR COUNTY OF ERIE STANDARD INSURANCE CERTIFICATE

I. Insurance shall be procured and certificates delivered before commencement of work or delivery of merchandise or equipment.

II. CERTIFICATES OF INSURANCE

A. Shall be made to the "County of Erie, 95 Franklin St, Buffalo NY, 14202"

B. Coverage must comply with all specifications of the contract.

C. Must be executed by an insurance company, agency or broker, which is licensed by the Insurance Department of the State of New York. If executed by a broker, notarized copy of authorization to bind or certify coverage must be attached.

III. Forward the completed certificate to: County of Erie, (Department or Division) responsible for entering into the agreement for construction, purchase, lease or service.

IV. Minimum coverage with limits are as follows:

Vendor Classification	A Construction and Maintenance	B Purchase or Lease of Merchandise or Equipment	C Professional Services	D Property Leased To Others Or Use Of Facilities Or Grounds	E Concession-aires Services	F Livery Services	G All Purposes Public Entity Contracts
Commercial Gen. Liab.	$1,000,000 per occ.	$1,000,000 CSL	$1,000,000 CSL	$1,000,000	$1,000,000 CSL	$1,000,000	$1,000,000 CSL
General Aggregate	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Products Completed Operations Liability	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Blanket Broad Form Contractual Liability	INCLUDE						
Contractual Liability		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Broad Form P.D.	INCLUDE						
X.C.U. (explosion, collapse, Underground)	INCLUDE						
Liquor Law				INCLUDE	INCLUDE		
Auto Liab.	$1,000,000 CSL		$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL	$1,000,000 CSL
Owned	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Hired	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Non-Owned	INCLUDE		INCLUDE	INCLUDE	INCLUDE	INCLUDE	INCLUDE
Excess/Umbrella Liab.	$5,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$5,000,000	$1,000,000
Worker's Compensation	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY
& Employer's Liability							
Disability Benefits	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY	STATUTORY
Professional Liability			$5,000,000				
Erie County, To Be Named Add'l Insd.	Gen. Liab., Auto Liab., & Excess	Broad Form Vendors May Be Required	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess	Gen. Liab., Auto Liab., & Excess

V. Construction contracts require excess Umbrella Liability limits of $5,000,000.

VI Coverage must be provided on a primary-non contributory bases.

VII. Designated Construction Project General Aggregate Limit Per Project Endorsement CG 25 03 is required.

VIII. In the event the concessionaire is required to have a N.Y.S. license to dispense alcoholic beverages an endorsement for liquor liability is required.

IX. Waiver of Subrogation: Required on all lines unless noted

X Transportation of people in buses, vans or station wagons requires $5,000,000 excess liability.

XI. Workers Compensation: State Workers' Compensation / Disability Benefits Law

Use Applicable Certificates Below:

Workers Compensation Forms

CE-200	Exemption
C105.2	Commercial Insurer
SI-12	Self Insurer
GSI-105.2	Group Self Insured
U-26.3	New York State Insurance Fund

DBL (Disability Benefits Law) Forms

CE-200	Exemption
DB-120.1	Insurers
DB-155	Self Insured

XII. The "ACORD" form certificate may be used in place of the County of Erie Standard Insurance Certificate, provided that all of the above referenced requirements are incorporated into the "ACORD" form certificate.

County of Erie Standard Insurance Certificate

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME
	PHONE (A/C No. Ext) / FAX A/C No:
	EMAIL ADDRESS
	PRODUCER CUSTOMER ID #:

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO T E INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY T E POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS COMP/OP AGG	$
								$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS						BODILY INJURY (Per accident)	$
	☐ SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident)	$
	☐ HIRED AUTOS							$
	☐ NON-OWNED AUTOS							$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DEDUCTIBLE							$
	☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						☐ WC STATU TORY LIMITS- ☐ OTH ER-	$
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N/A					E.L. EACH ACCIDENT	$
	If yes describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L.DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

County of Erie
95 Franklin St
Buffalo NY, 14202

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

X. FOR COUNTY USE ONLY:

Name of County Dept. Requesting Certificate: Department of Public Works

Purchase Order or Contact Number:

Vendor Insurance Classification: A-Construction and Maintenance

(Rev 3/11)

APPENDIX "C"

COUNTY OF ERIE – EXECUTIVE ORDER NO.13 – PAY EQUITY CERTIFICATION ON COUNTY CONTRACTS

Pay Equity Certification on County Contracts

During the term of this Contract, the Awardee shall comply with Executive Order 13 (2014), and the Awardee shall make such records available, upon request, to the County's Division of Equal Employment Opportunity for review. The County shall have the right, upon reasonable notice and at reasonable times, to inspect the books and records of the Awardee, its offices and facilities, for the purpose of verifying information supplied in the Erie County Equal Pay Certification and for any other purpose reasonably related to confirming the Awardee's compliance with Erie County Executive Order No. 13 (2014). Violation of the provisions of Executive Order 13 (2014), which is attached hereto and made a part hereof, can constitute grounds for the immediate termination of this contract and may constitute grounds for determining that a bidder is not qualified to participate in future county contracts.

Executive Order #013

Pay Equity Certification on County Contracts

WHEREAS, federal law, including the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964 and Federal Executive Order 11246 of September 24, 1965 (Equal Employment Opportunity) (together "Federal Equal Pay Law"), requires that men and women in the same workplace be given equal pay for equal work; and

WHEREAS, Section 194 of New York State Labor Law ("NYS Equal Pay Law") prohibits compensating men and women differently for the same work; and

WHEREAS, on average, a full-time working woman in New York State earns just 85 cents for every dollar that a man earns and the pay gap is even greater for African-American and Latina women; and

WHEREAS, females make up nearly fifty-two percent of Erie County's population; and

WHEREAS, women make up nearly half of the U.S. labor force and are a growing number of breadwinners in their families; and

WHEREAS, this pay differential shortchanges women and their families by thousands of dollars a year, and potentially hundreds of thousands of dollars over a lifetime, presenting a lifelong threat to those families' economic security and reducing their earnings through Social Security and other post retirement plans; and

WHEREAS, poverty is recognized as a leading cause of or contributing factor to many social problems, including but not limited to substance abuse, domestic violence, child abuse, improper nutrition, obesity, improper health care and criminal conduct; and

WHEREAS, the impact of pay differentials is exacerbated as workers age, causing underpaid workers to disproportionally rely upon various forms of public support in their retirement years; and

WHEREAS, pay inequity can significantly impact the County, necessitating the provision of various public subsidies for low income residents and leading to the lack of receipt of income by women residents which would be spent in our local economy; and

WHEREAS, through the enforcement of current state and federal laws that ban unequal pay for equal work, Erie County can help ameliorate the many negative consequences of pay inequality, thereby improving the lives of those who might otherwise be underpaid, strengthening families and protecting children, and

reducing the demand for public services, all positively impacting county, state and federal budgets.

NOW, THEREFORE, I MARK C. POLONCARZ, Erie County Executive, by virtue of the authority vested in me by the Erie County Charter § 302, do hereby order as follows:

1. It is ordered that on and after January 1, 2015, all Erie County offices, departments and administrative units, including but not limited to the Division of Purchase, fully implement a requirement in all bids, requests for proposals and other contract solicitations that the contractor submit an Erie County Equal Pay Certification which certifies the contractor's compliance with Federal Equal Pay Law and New York State Equal Pay Law (together, the "Equal Pay Laws"). Such certification shall be required prior to execution of the contract; and it is,

2. Further ordered that such certification shall include a representation by the contractor that it has not been the subject of an adverse finding under the Equal Pay Laws within the previous five years and shall include disclosure of any currently pending claims against the contractor; and it is,

3. Further ordered that violation of any provision of the Equal Pay Laws during the effective period of such a contract or the filing of a false or misleading Erie County Equal Pay Certificate may constitute grounds for immediate termination of such a contract; and it is,

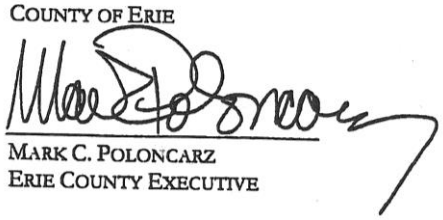
4. Further ordered that violation of any provision of the Equal Pay Laws during the effective period of such a contract or the filing of a false or misleading Erie County Equal Pay Certificate may constitute grounds for determining a bidder or responder is not qualified to participate in future County contracts; and it is,

5. Further ordered that the Law Department prepare an Erie County Equal Pay Certification for use by Erie County offices, departments and administrative units and assure compliance with this Executive Order in the contract approval process; and it is,

6. Further ordered that the County Division of Equal Employment Opportunity ("EEO") establish a procedure for compliance monitoring and periodic auditing of certification records; and it is,

GIVEN, under my hand and the Privy Seal of the County of Erie in the City of Buffalo this 28th day of October, in the year two thousand fourteen.

COUNTY OF ERIE

BY: 

MARK C. POLONCARZ
ERIE COUNTY EXECUTIVE

APPENDIX "D"

COUNTY OF ERIE – EXECUTIVE ORDER NO. 18 – FIRST SOURCE HIRING POLICY FOR COUNTY CONSTRUCTION PROJECTS

Exhibit 1 - Executive Order # 18 Policy

Exhibit 2 - Executive Order # 18 Rules and Regulations

Exhibit 3 – Executive Order # 18 Monitoring and Reporting Requirements

Exhibit 4 – List of First Source Zip Codes

Executive Order #018
Erie County Construction Project Bid Documents Shall Include
Local and Disadvantaged Worker Requirements

Whereas, Erie County annually appropriates over $25,000,000 in tax dollars for expenditures related to public works construction projects;

Whereas, Erie County awards contracts to private firms to provide the construction services associated with budgeted projects;

Whereas, while unemployment in Erie County as a whole is comparable to other metropolitan regions in the United States, the unemployment rate within certain zip codes located in Erie County is as high as 21.7% and the poverty rate as high as 44.7%;

Whereas, there are 182,200 working age individuals in the region who are either unemployed or underemployed and seeking work;

Whereas, low-income or otherwise disadvantaged individuals residing in Erie County experience higher rates of unemployment compared to other individuals;

Whereas, the purpose of this order is to foster construction employment opportunities for qualified local residents, underemployed individuals or otherwise disadvantaged workers on those construction projects located within the geographic boundaries of Erie County which are bid by the County of Erie ("Erie County construction project(s)").

Now, Therefore, I, Mark C. Poloncarz, Erie County Executive, by virtue of the authority vested in me by Erie County's Charter Sections 301 and 302, do hereby order as follows:

1. It is ordered that on and after April 30, 2018, all bids for Erie County construction projects initiating out of the Erie County Department of Environment and Planning Division of Sewerage Management and on and after October 1, 2017, all other bids for Erie County construction projects wherever so initiated, and all associated contracts involving an expenditure of $250,000 or greater which utilize not less than three workers to complete the project shall require that:

   a) Entirely 100% of work hours performed by residents of New York State on an Erie County construction project will be worked by residents of the Local Labor Area (Erie County, Niagara County, Chautauqua County, Cattaraugus County, Allegany County, Wyoming County, Genesee County, Orleans County).

   b) At least 70% of total work hours performed by residents of New York State on an Erie County construction project will be worked by residents of the County of Erie.

   c) For the remainder of the calendar year subsequent to the effective date of this Order as specified above in Section 1, and for the entirety of the calendar year that follows, at least 20% of total work hours performed by residents of New York State, which percentage may be wholly or partly included within the hourly requirement contained in sub-section (b) above, used on an Erie County construction project will be worked by residents of Erie County who reside in zip codes with a poverty rate of 20% or higher, and/or, in any ratio, disadvantaged workers who

reside in Erie County. A disadvantaged worker is a resident who has a household income below 50% of the Area Median Income ("AMI"); or has been released from prison within the last 10 years; or participates in the Temporary Assistance for Needy Families program; or participates in the Supplemental Nutrition Assistance Program; or has been unemployed for at least 12 consecutive months.

d) On the first day of the second full calendar year from such effective date and continuing thereafter, the applicable percentage of total work hours performed referenced in this subsection above will move upward from 20% to 30%. The applicable zip codes as referenced above will be determined annually by the ErieCounty Division of Equal Employment Opportunity and will be provided to potential contractors in all request for bids documents; and

2. It is further ordered that work hours performed by individuals residing outside of New York State will not be included in the requirements set forth above; and

3. It is further ordered that where an Erie County construction project is funded in whole or in part with Federal Highway Administration monies, those projects are exempt from the requirements specified above to avoid conflict with federal law or regulation; and

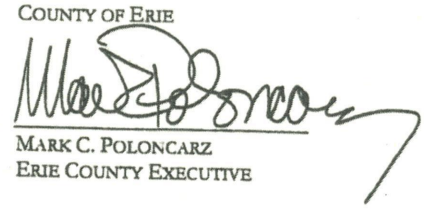
4. It is further ordered that failure to adhere to the requirements herein, as further delineated in all formal construction contracts and any rules and regulations promulgated pursuant to Section 5 below, will constitute grounds for immediate termination of the underlying contract and will further result in the Contractor being deemed a non-responsible bidder for a period of twelve months. Once grounds for immediate termination are established, actual contract termination will be at the discretion of Erie County; and

5. It is further ordered that the Erie County Department of Law must promulgate, and update annually where necessary, separate formal rules and regulations with respect to implementation of the requirements contained herein as applied respectively and distinctly to Erie County construction projects initiating out of the Erie County Department of Environment and Planning Division of Sewerage Management and to Erie County construction projects wherever else so initiated. The Erie County Department of Law must also assure compliance with this Executive Order within the contract approval process; and

6. It is further ordered that the Erie County Division of Equal Employment Opportunity establish a procedure for compliance monitoring and periodic auditing of construction contractor hiring rates.

Given, under my hand and the Privy Seal of the County of Erie in the City of Buffalo this twenty seventh day of September, in the year two thousand seventeen.

COUNTY OF ERIE

BY: 

MARK C. POLONCARZ
ERIE COUNTY EXECUTIVE

RULES AND REGULATIONS IMPLEMENTING
ERIE COUNTY EXECUTIVE MARK C. POLONCARZ ORDER #18

PURPOSE

The Erie County Attorney's Office promulgates these Rules and Regulations pursuant to Section 5 of Erie County Executive Mark C. Poloncarz Order #18 dated September 27, 2017 ("EO #18"). These Rules and Regulations are intended to articulate guidelines for implementing the provisions of EO #18 as they relate to those Erie County construction projects.

DEFINITIONS

1. **ERIE COUNTY CONSTRUCTION PROJECT** shall mean construction projects bid by Erie County and located within the geographic boundaries of Erie County which involve an expenditure of $250,000 or more and which utilize not less than three construction workers to complete the project.

2. **CONSTRUCTION SUBCONTRACT** shall mean any subcontract entered into by a contractor working on an Erie County Construction Project which, by its terms, engages such subcontractor to provide work hours on an Erie County Construction Project.

3. **CONTRACTOR OR SUBCONTRACTOR** shall mean a contractor or subcontractor that directly employs construction workers who provide work hours on an Erie County Construction Project.

4. **CONSTRUCTION WORKER** shall mean a laborer, workman or mechanic who resides in the local labor area (Erie County, Niagara County, Chautauqua County, Cattaraugus County, Allegany County, Wyoming County, Genesee County, Orleans County) and is directly involved in the construction, reconstruction, improvement, rehabilitation, installation, alteration, renovation, demolition or otherwise providing for any building, facility, roads, highways, bridges, or physical structure of any kind, but does not include professional services employees.

APPLICATION

All Erie County Construction Projects ("Project" or "Projects") as defined above are subject to the provisions of EO #18. The Commissioner or his/her Designee or the Division Head or his/her Designee of the Erie County Department or Division who solicits a bid for an Erie County Construction project ("the Commissioner") must, with the aid of the County Attorney when necessary, determine on a case by case basis the applicability of EO #18 to a given project. In order for a project to be subject to EO #18, the Commissioner must make the following findings:

1. **Location**: The Commissioner must find that work on a project will take place solely within the geographic boundaries of Erie County.

2. **Monetary Threshold**: The Commissioner must find that the cost of a project meets or exceeds $250,000. In determining whether a project meets the expenditure threshold of $250,000, the Commissioner shall calculate the total cost of the project based on the successful bidder's final bid submission. A project previously exempt because it did not meet the monetary threshold of $250,000 may become subject to EO #18 because an amendment, modification, renewal, or extension increases the total cost of the project. In that case, the Commissioner will have the authority to unilaterally amend the project contract(s) to include the standard EO #18 contract language and certification specifically delineated below.

3. **Work Force Threshold**: The Commissioner must find that no less than three construction workers will be utilized by contractor and/or subcontractor for the completion of the project. In determining whether a project utilizes at least three construction workers to complete the Project, the Commissioner shall rely on the statement of work force contained within the attestation required by the mandatory request for bid language specifically delineated below. A project previously exempt because it did not meet the work force threshold may become subject to EO #18 because of an increase in work force during the course of work on the project. In that case, the Commissioner shall have the authority to unilaterally amend the project contract(s) to include the standard EO #18 contract language and certification specifically delineated below.

REQUEST FOR BID LANGUAGE

The Commissioner shall include the following language in all construction project Requests for Bids.

ERIE COUNTY EXECUTIVE ORDER #18: The project contemplated by this Request for Bids may be subject to Erie County Executive Order #18 which is attached hereto along with its Rules and Regulations for reference as Exhibit _____. The Erie County Department or Division letting the contract will advise the successful bidder if it must comply with Executive Order #18 at the time of award. All bids must include a verified attestation of intent to comply and statement of work force. Such attestation and statement is attached hereto as Exhibit _____. Any bids received which do not include such attestation or include an incomplete attestation will be deemed non-compliant and will not be considered for award. Be advised that the Contractor will be required to provide monthly reports demonstrating good faith efforts to meet the work force requirements using LCPtracker software.

CONTRACT LANGUAGE

The Commissioner shall include the following language in all award contracts for construction projects determined to be subject to EO #18.

ERIE COUNTY EXECUTIVE ORDER #18: The Commissioner or Division Director of the Erie County Department or Division letting the contract has determined that the project

contemplated herein is subject to the provisions of Erie County Executive Order #18 which is attached hereto for reference as Exhibit _____. Prior to the final execution of this Agreement, Contractor shall furnish to the County a fully executed and verified Local and Disadvantaged Worker Compliance Certification. A fillable Certification is attached hereto as Exhibit _____. Contractor will be required to provide monthly reports demonstrating good faith efforts to meet the work force requirements using LCPtracker software. Contractor shall make such records as deemed necessary available upon request to the Erie County Division of Equal Employment Opportunity for review. The County shall have the right, upon reasonable notice and at reasonable times, to inspect the books and records of the Contractor, for the purpose of verifying information supplied in the Local and Disadvantaged Worker Compliance Certification and for any other purpose reasonably related to confirming Contractor compliance with Erie County Executive Order #18. Notwithstanding any other termination provisions contained herein, violations of the provisions of Executive Order #18 will constitute grounds for immediate termination of the underlying contract and shall further result in the Contractor being deemed a non-responsible bidder for a period of twelve months. Once grounds for immediate termination are established, actual contract termination will be at the discretion of Erie County.

WAIVER PROCESS

When a Commissioner determines that a project is subject to the provisions of EO #18, he/she shall notify the successful bidder of such determination at the time of award. The successful bidder shall then have the opportunity to submit a partial waiver request to the Erie County Division of Equal Employment Opportunity for consideration. Waiver requests shall be made in writing and directed to the Erie County Division of Equal Employment Opportunity at 95 Franklin Street, Room 625, Buffalo, NY 14202 "Attention Director". In order to prevent undue project delays, any such request shall be made as soon as the successful bidder is aware that it cannot meet the full requirements of EO #18. Should a partial waiver be requested such request shall state which EO #18 requirement(s) cannot be met and shall further indicate how the successful bidder intends to partially comply. All waiver requests shall contain a narrative of the efforts employed by the successful bidder in attempting to comply with EO #18 by recruiting construction workers to work on the subject project and the reasons why such efforts were only partially successful. At a minimum, these efforts must include and the narrative must state the following:

1) Where a successful bidder has, through collective bargaining agreements or other legally binding agreements, any exclusive hiring arrangements with local unions such successful bidder must attempt to meet the mandates of EO #18 by following the hiring process outlined in their respective exclusivity agreements. The narrative provided in connection with any waiver request will describe the process followed and the results of those efforts. Where a successful bidder has no exclusive hiring agreements in place or where a successful bidder is unable to comply with EO #18 after following their exclusive hire process, such successful bidder must proceed to follow steps 2 through 4 below.

2) Posting the job opening(s) for construction worker(s) on or with each of the following:

A) The New York State Department of Labor Database used by the Buffalo and Erie County Workforce System (www.jobzone.ny.gov)

B) The People United for Sustainable Housing located at 271 Grant Street, Buffalo, NY 14213

C) At least one private staffing firm to aid Contractor in locating qualified candidates

D) Any other staffing organization or web site if so directed by the Erie County Commissioner of Public Works

3) All job opening(s) posted pursuant to Section one above must be posted for a period of at least ten (10) consecutive calendar days. Proof of publication must be included in all waiver requests.

4) The narrative provided with a waiver request shall state the number of candidates found via the job postings that would aid Contractor in meeting the requirements of EO #18, the number of those candidates that were subsequently interviewed for the opening(s), and if such candidates were not hired, the narrative shall include the reason(s) why the candidates were found to be unsuitable for the position(s).

5) A copy of the waiver request shall be sent to the Project Manager/Point of Contact in the Erie County Department of Public Works located at 95 Franklin Street, 14th Floor, Buffalo, NY 14202

If the Erie County Division of Equal Employment Opportunity determines that a successful bidder has demonstrated a good faith effort to comply in whole with the provisions of EO #18, and yet for reasons delineated in its request still cannot do so, a partial waiver shall be granted to the successful bidder.

SPECIALIZED WORK EXEMPTION

Certain Erie County Construction Projects require the use of workers who possess specialized skills, training, or formal certification/licensing in order to complete the contemplated work. When a Commissioner or Director of an Erie County Department or Division believes that there are an insufficient number of construction workers that meet EO#18 requirements and possess the unique qualifications necessary to complete such specialized work, he/she may request a specialized work exemption from the Erie County Division of Equal Employment Opportunity. Where granted, a specialized work exemption removes the mandates of EO #18 in whole or in part for a given project.

A request for a specialized work exemption shall be made in writing by the commissioner or director bidding the subject project. The request shall be directed to the Erie County Division of Equal Employment Opportunity at 95 Franklin Street, Room 625, Buffalo, NY 14202 "Attention Director" and must include a narrative describing what the specialized work involves, what portion of the project such specialized work is needed for, the particular skills, training, or formal

certification/licensing needed to perform the work, and the steps taken to determine if workers meeting EO #18 requirements have the necessary expertise. Upon receipt of a specialized work exemption request, the Equal Employment Opportunity Director shall form an ad hoc committee, and select its members, in order to review the request and either grant or deny the specialized work exemption.

The specialized work exemption committee shall consist of four members to include the commissioner or director of the department or division biding the project, the involved project manager, and one respective representative from the Erie County Department of Law and the Erie County Division of Equal Employment Opportunity. The committee shall convene as soon as practicable to consider the specialized work exemption request. In making a determination, the committee shall consider all information presented to it and shall solicit further information from any source available in order to aid in its deliberations. A determination as to whether or not to grant the specialized work exemption shall be made within a reasonable time so as not to frustrate the bidding process for the contemplated project. The committee's determination shall be memorialized in writing and shall include its specific findings and the information upon which such findings were made.

Where the committee finds that a specialized work exemption is warranted, a notice to bidders shall be included in the project bid specifications which shall clearly indicate what portion of the project is exempt from the provisions of EO #18 and shall further indicate that the remaining work, if any, may still be subject to EO #18. Where there is work remaining outside of the granted exemption, the attestation of work force must be completed to include that portion of work which falls outside of the exemption.

COMPLIANCE

The Director of the Erie County Division of Equal Employment Opportunity shall ensure that all contractors and subcontractors working on a Project as defined herein are in compliance with EO #18 or are in compliance with the provisions of any duly granted partial waiver or have been granted a full waiver.

PENALTY FOR NONCOMPLIANCE

Any failure to adhere to Erie County Executive Order #18 or the Rules and Regulations contained herein shall cause Contractor to be deemed noncompliant. Such noncompliance shall constitute grounds for immediate termination of the underlying contract and shall further result in the Contractor being deemed a non-responsible bidder for a period of twelve months. Once grounds for immediate termination are established, actual contract termination will be at the discretion of Erie County.

County of Erie Executive Order No. 18
Monitoring and Reports

All EMPLOYER/EMPLOYEE information reviewed or gathered, including Social Security Numbers, as a result of ERIE COUNTY'S Division of Equal Employment Opportunity (DEEO) monitoring and enforcement activities will be held confidential in accordance with all County, State and Federal confidentiality and privacy laws and used only for the purposes that it was reviewed or gathered.

A. The Division of Equal Employment Opportunity (DEEO) shall monitor all Projects as authorized by Executive Order No. 18. The DEEO will require the following:
   1. CONTRACTOR and Subcontractor whose projects are subject to ERIE COUNTY Executive Order No. 18 are to utilize their Certified Payroll Records when reporting their workforce compliance. That of the total work hours performed by residents of New York State on an Erie County construction project 100% are worked by residents of the Local Labor Area and 70% are worked by residents of the County of Erie.
   2. Monthly LCPTracker Reports to determine if the CONTRACTOR and/or Subcontractor's workforce is in compliance with the submitted Agreement and that Monthly Compliance Reports identify residents of Erie County who reside in zip codes with a poverty rate of 30% or higher, and/or, in any ratio, disadvantaged workers who reside in Erie County. (***A disadvantaged worker is*** *(1).* ***a resident who has a household income below 50% of the Area Median Income (AMI); or*** *(2)* ***has been released from prison within the last 10 years, or*** *(3)* ***participates in the Temporary Assistance for Needy Families Program; or*** *(4)* ***participates in the Supplemental Nutrition Assistance Program; or*** *(5)* ***has been unemployed for at least 12 consecutive months.***)
   3. Receive *LCPTracker* Reports; inspect certified payroll, personnel records and any other records or information necessary to ensure the required workforce utilization is in compliance with the EC Executive Order No. 18.
   4. Conduct desk reviews of Monthly Compliance Reports.
   5. Monitor and complete statistical reports that identify the overall project, contractor, and subcontractors' hiring or hours worked percentages in accordance with meeting Executive Order No. 18 stated requirements.
   6. Provide formal notification of non-compliance with the required workforce percentages or any alleged breach of Executive Oder No. 18 to all contracting agencies, and stakeholders.

B. PENALTIES

Willful breach of the Executive Order No. 18 by the CONTRACTOR, failure to submit the Contract Compliance Reports via LCPTracker, deliberate submission of falsified data, or failure to reach specific hiring or hours worked requirements may result in:

1. Erie County immediate termination of the underlying contract.
2. The CONTRACTOR being deemed a non-responsible bidder for a period of twelve months.

EO #18 - EXHIBIT # 4

First Source Policy Targeted Zip Codes – Erie County Zip Codes with 20% Poverty Rate or Higher:

Zip Code	Area
14201	Buffalo – Peace Bridge to Chippewa
14203	Buffalo – Downtown and the Outer Harbor
14204	Buffalo – Fruit Belt to the Old First Ward
14206	Cheektowaga
14207	Buffalo
14208	Buffalo
14209	Buffalo
14210	Buffalo
14211	Buffalo, Cheektowaga and Sloan – Kensington and Bailey
14212	Buffalo and Cheektowaga – Central Terminal and Broadway
14213	Buffalo – Peace Bridge to Buffalo State
14214	Buffalo – Delaware Park to UB (East Side)
14215	Buffalo and Cheektowaga – Intersection of Bailey Ave. and Route 33
14218	City of Lackawanna
14061	Farnham
14169	Wales Center

APPENDIX "E"

COUNTY OF ERIE – CONTRACT REFERENCE DOCUMENTS

Exhibit 1 – Example Agreement

Exhibit 2 – Example Performance and Labor Bond

COUNTY OF ERIE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

DPW PROJECT # **YEAR-LOCATION-#**
VENDOR #

AGREEMENT

This Agreement made as of the _____ day of _____, 2020 by and between the County of Erie, a municipal corporation of the State of New York, having its principal place of business at The Edward A. Rath, County Office Building, 95 Franklin Street, Buffalo New York 14202, hereinafter called "County" and **AWARDEE (VENDOR)** having its principal office at **VENDOR ADDRESS, CITY, STATE, ZIP** hereinafter called the "Contractor".

All notices or other communications including service under this contract shall be deemed to have been properly given when sent, first class, postage prepaid, return receipt requested to the addresses set forth below:

For the County:
Erie County Department of Public Works
95 Franklin Street, Suite 1400
Buffalo, New York 14202

For the Contractor:
VENDOR NAME
VENDOR ADDRESS
CITY, STATE ZIP

WITNESSETH That whereas the County intends to do **DISCIPLINE** construction work in connection with the **PROJECT NAME**, located at **PROJECT ADDRESS** hereinafter called the "Project" in accordance with the Contract Documents prepared by **AE DESIGN FIRM**, having its principal offices at **AE ADDRESS**.

NOW, THEREFORE, The County and the Contractor for the consideration hereinafter set forth, agree as follows:

The Contractor agrees to furnish all necessary labor, materials, equipment, tools and services necessary to perform and complete in a workman - like manner all work required for the construction of the PROJECT, in strict compliance with the Contract Documents herein mentioned, which are hereby made a part of the Contract, including the following Addenda:

Addendum # 1 DATE
Addendum # 2 DATE

COMPLETION TIME: Work shall commence immediately upon receipt of written Notice to Proceed and shall progress pursuant to the provisions set forth in the agreement. The Contractor hereby agrees substantially complete with the work of this agreement **within 000 calendar days** from the date of issuance of the Notice to Proceed.

SUB-CONTRACTORS: The Contractor agrees to bind every sub-Contractor by the terms of the Contract Documents. The Contract Documents shall not be construed as creating any contractual relation between any sub-Contractor and the County.

AGREEMENT AMOUNT: The County agrees to pay and the Contractor agrees to accept, in full payment for the performance of this Agreement, the total amount of: **AMOUNT LONG WRITTEN Dollars ($00.00).** And be funded from **SAP Account(s) X.00000.**

a. Progress Payments will be made in accordance with the General Conditions of the Contract.

CONTRACT DOCUMENTS: the Contract is comprised of the documents listed in paragraph 1.01 of the General Conditions of the Contract. In the event that any provision of one Contract Document, conflicts with the provision of another Contract Document, the provision in that Contract Document first listed below shall govern, except as otherwise specifically stated:

a. Agreement (This Instrument)
b. Addenda to Contract Documents
c. Legal and Procedural documents other than Bonds
    1. Proposal which is attached hereto as "Appendix A".
    2. Information for Bidders
    3. Advertisements
    4. Form of Affidavit for Final Payment
    5. Form of Guarantee
d. Detailed Specifications Requirements
e. Drawings
f. General Conditions of the Contract (Sections 1 through 9, inclusive)
g. Supplementary General Conditions
h. Bonds
    1. Performance, Labor and Material Payment Bond
    2. Proposal Guaranty

AUTHORITY AND RESPONSIBILTY OF THE ARCHITECT - ENGINEERS: All work shall be done under the general administration of the Architect - Engineer. The Architect - Engineer shall decide any and all questions which may arise as to quality and acceptability of materials furnished, work performed, rate of progress of the work, interpretation of drawings and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor.

SUCCESSORS AND ASSIGNS: This agreement and all of the covenants hereof shall inure to the benefit of and be binding upon the County and the Contractor respectively and his partners, successors, assigns and legal representatives. Neither the County nor the Contractor shall have the right to assign, transfer or sublet his interests or obligations hereunder without written consent of the other party.

INDEMNIFICATION: To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the County of Erie, its agents, officers and employees, from any and all liability, damage, claims, demands, costs, judgments, fees, attorney's fees or loss arising out of, directly or indirectly, or relating in any way to the performance or failure to perform under this Agreement by the Contractor or third parties under the direction or control of the Contractor, including but not limited to personal injuries. The Contractor shall defend the County, at its sole expense, against any and all claims, demands or causes of action directly or indirectly arising out of this Agreement and to bear all other costs and expenses related thereto.

EXECUTIVE ORDER No. 13 (2014): The Contractor shall comply with Erie County Executive Order 13 (2014) and agrees to complete the Certificate collectively attached hereto **as Appendix "C**" and made a part hereof. The Contractor shall make such records available, upon request, to the County's Division of Equal Employment Opportunity for review. The County shall have the right, upon reasonable notice and at reasonable times, to inspect the books and records of the Contractor, its offices and facilities, for the purpose of verifying information supplied in the Erie County Equal Pay Certification and for any other purpose reasonably related to confirming the Contractors' compliance with Erie County Executive Order 13 (2014). Notwithstanding the termination provisions contained herein, violation of the provisions of Executive Order 13 (2014) , may constitute grounds for the immediate termination of this Agreement and may constitute grounds for determining that the Contractor is not qualified to participate in future County contracts.

EXECUTIVE ORDER No. 18 (2017): The Commissioner or Division Director of the Erie County Department or Division letting the contract has determined that the project contemplated herein is subject to the provisions of Erie County Executive Order #18. Prior to the final execution of this Agreement, Contractor shall furnish to the County a fully executed and verified *Local and Disadvantaged Worker Compliance Certification*. A fillable Certification is included in **Appendix "D"**. Contractor shall make such records as deemed necessary available upon request to the Erie County Division of Equal Employment Opportunity for review. The County shall have the right, upon reasonable notice and at reasonable times, to inspect the books and records of the Contractor, for the purpose of verifying information supplied in the Local and Disadvantaged Worker Compliance Certification and for any other purpose reasonably related to confirming Contractor compliance with Erie County Executive Order #18. Notwithstanding any other termination provisions contained herein, violations of the provisions of Executive Order #18 will constitute grounds for immediate termination of the underlying contract and shall further result in the Contractor being deemed a non-responsible bidder for a period of twelve months. Once grounds for immediate termination are established, actual contract termination will be at the discretion of Erie County.

EXECUTORY: This Contract is executory only to the extent of funds appropriated and made available to the County, therefore, and no liability shall be incurred by the County beyond such available funds.

a. The Contractor agrees not to submit a Request for Payment until the Contractor receives an executed copy of this Agreement from the County.

COUNTY'S RIGHT TO TERMINATE:

a. The County, upon ten (10) days' notice to the Contractor, may terminate this Agreement in whole or in part when the County deems it to be in its best interest. In such event, the Contractor shall be compensated and the County shall be liable only for payment for services already rendered under this Agreement prior to the effective date of termination at the values established under the approved Schedule of Values. Upon receipt of notice that the County is terminating this Agreement in its best interests, the Contractor shall stop work immediately and incur no further costs in furtherance of this Agreement without the express approval of the Commissioner of Public Works, and the Contractor shall direct any approved sub-contractor to do the same. In the event of a dispute as to the value of the Work rendered by the Contractor prior to the date of termination, it is understood and agreed that the Commissioner shall determine the value of such Work rendered by the Contractor. The Contractor shall accept such reasonable and good faith determination as final.

b. In the event the County determines that there has been a material breach by the Contractor of any of the terms of the Agreement and such breach remains uncured for forty-eight (48) hours after service on the Contractor of written notice thereof, the County, in addition to any other right or remedy it might have, may terminate this Agreement and the County shall have the right, power and authority to complete the Work provided for in this Agreement, or contract for its completion, and any additional expense or cost of such completion shall be charged to and paid by the Contractor. Without limiting the foregoing, upon written notice to the Contractor, repeated breaches by the Contractor of duties or obligations under this Agreement shall be deemed a material breach of this Agreement justifying termination for cause hereunder without requirement for further opportunity to cure.

SPECIAL PROVISIONS: The County and the Contractor mutually agree that this Agreement shall be subject to the following Special Provision:

The Contractor agrees that he will hold all of the Alternate and/or Unit Prices appearing in the PROJECT PROPOSAL, "Appendix A", for the duration of the Agreement with Owner. All materials and workmanship shall be in strict accordance with specifications and drawings. The Owner, reserves the right to either accept or reject any or all of the Alternate and/or Unit Prices in the PROJECT PROPOSAL, "Appendix A". The total amount of the contract as heretofore states, shall be accordingly increased or decreased, as the case may be.

INSURANCE: During the term of this Agreement, the Contractor agrees to maintain insurance coverage consistent with the insurance requirements attached hereto and incorporated herein as **Schedule B.** Contractor agrees to name the "County of Erie" as an additional insured on all such insurance policies, and to provide to the County Attorney certificate(s) of insurance evidencing such insurance coverage prior to the commencement of any work on the Project. All insurance certificates shall be subject to approval by the office of the County Attorney.

CONFIDENTIALITY: The County agrees to assist the Contractor with the scope of work described in the Contractor's Contract by providing applicable drawing files that may include but not be limited to; drawings, specifications, approved submittals and any other reasonable information necessary to perform the Contractor's scope of work. Any and all information provided to the Contractor by The County or the Design Consultant, shall be defined as "Confidential Information".

Contractor hereby agrees to maintain any Confidential Information received or learned in preparation of the underlying scope of work, (a) in confidence to the same extent the Contractor maintains its own proprietary industrial information of similar kind and value (but at a minimum the Consultant shall use commercially reasonable efforts); (b) the Contractor agrees not to disclose such Confidential Information to any Third Party without prior consent of the County; and (c) not use such Confidential Information for any purpose except those permitted by this Agreement.

RESOLUTION: This Agreement is made and executed pursuant to resolutions of **the Erie County Legislature adopted on the 00 day of MONTH, YEAR being Communication Number 00E-00**, copy(ies) of which are annexed hereto.

COUNTY OF ERIE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

This Agreement document, together with the Contract Documents listed on page A2 of the Agreement constitutes the sole and complete agreement and understanding between the Parties.

County of Erie

_____
Mark Poloncarz/Lisa Chimera
County Executive/Deputy County Executive
Dated: _____

95 Franklin Street
BUSINESS ADDRESS

Buffalo NY 14202
CITY STATE ZIP

VENDOR NAME

_____
Print Name:
Title:
Date:

VENDOR ADDRESS
BUSINESS ADDRESS

CITY STATE ZIP
CITY STATE ZIP

APPROVED AS TO CONTENT
Electronically Signed

.
COMMISSIONER 0F PUBLIC WORKS
COUNTY OF ERIE, STATE OF NEW YORK

APPROVED AS TO FORM
Electronically Signed

Document No._____
ASSISTANT ERIE COUNTY ATTORNEY
COUNTY OF ERIE, STATE OF NEW YORK

CORPORATE ACKNOWLEDGEMENT

State of New York)
County of)

On the ____day of _____, 2020, before me personally came_____, to me known who, being by me duly sworn, did depose and say that he reside(s) in _____ _____; that he is the_____of_____, the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he signed his name thereto by like authority.

_____
Notary Public

Re: PROJECT I.D.

COUNTY OF ERIE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

PERFORMANCE AND LABOR AND MATERIAL PAYMENT BOND

PROJECT No. _____

KNOW ALL MEN BY THESE PRESENTS, That we, _____

of_____(hereinafter called Principal) and the

_____a corporation of the State of _____

having its principal office in the City of _____and authorized to do business in the State of New York (hereinafter called Surety) and held and firmly bound unto the County of Erie, State of New York (hereinafter called Obligee), in the amount of _____

($_____) Dollars, lawful money of the United States of America, for the payment of which the Principal and the Surety hereby bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the above bounden Principal has by written agreement dated_____20____ entered into a contract with the Obligee for $_____which contract and documents included therein by reference made a part hereof (hereinafter called Contract), covering the following project, _____

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall:

1. Well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the Obligee, with or without notice to the Surety, and during the life of any guarantee required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all modifications of said Contract that may hereafter be made, with or without notice to the Surety.

2. Promptly make payment to all persons having a direct contract with the Principal or with a subcontractor of the Principal supplying labor and material in the prosecution of the work provided for in said Contract and any and all modifications of said Contract that may hereinafter be made, notice of which modifications to the Surety being hereby waived; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, and this bond is executed and accepted upon the following express conditions.

1. That all persons who have supplied labor and material as aforesaid shall have a direct right of action hereunder against the Principal and the Surety subject, however, to the prior right of the Obligee to recover hereunder on account of any loss or damage caused to it by the failure of the Principal to perform the Contract as aforesaid.

2. The Surety for value received hereby stipulates and agrees, if requested to do so by the Obligee, to fully perform and complete the work and furnish the materials mentioned and described in said contract pursuant to terms, conditions, and covenants thereof, if for any cause said principal fails or neglects to so fully perform said work; the said Surety further agrees to commence said work of completion twenty (20) days after notice thereof from the Obligee.

3. That the Obligee shall notify the Surety by registered letter, addressed and mailed to its Home Office, of any breach of said-Contract within sixty (60) days after such breach shall have come to the knowledge of the Obligee (Owner)

4. That the Surety shall not be liable hereunder for any damage or compensation recoverable under any Workmen's Compensation or Employer's Liability Statute.

5. That no suit, action or proceedings, for loss or damage caused by a breach of any of the conditions of this bond shall be brought against the Surety by the Obligee after one (1) year from the day of final acceptance of the work by the Owner.

6. That no suit, action or proceedings for loss caused by the failure of the Principal to pay all persons supplying labor and material in the prosecution of the work under said Contract shall be brought against the Surety after six (6) months from the day on which final payment of the Contract is made.

Signed, sealed and dated this _____day of_____20_____

_____ (seal)
(Principal)

_____ (seal)
(Principal)

By
_____ (seal)
President, Vice President, Secretary-Treasurer
(Surety)

SUPPLEMENTARY GENERAL CONDITIONS

The following supplements modify the "GENERAL CONDITIONS OF THE CONTRACT". Where a portion of the General Conditions is modified or deleted by these Supplementary General Conditions, the unaltered portions of the General Conditions shall remain in effect.

Item -1: SECTION 3 – RELATIONS AMONG OWNERS, CONTRACTOR AND ARCHITECT/ ENGINEER

3.14 Delete and replace with the following: "3.14 OWNER'S RIGHT TO TERMINATE CONTRACT AND COMPLETE THE WORK

A. The County, upon ten (10) days notice to the Contractor, may terminate this Agreement in whole or in part when the County deems it to be in its best interest. In such event, the Contractor shall be compensated and the County shall be liable only for payment for services already rendered under this Agreement prior to the effective date of termination at the values established under the approved Schedule of Values. Upon receipt of notice that the County is terminating this Agreement in its best interests, the Contractor shall stop work immediately and incur no further costs in furtherance of this Agreement without the express approval of the Commissioner of Public Works, and the Contractor shall direct any approved sub contractor to do the same.

In the event of a dispute as to the value of the Work rendered by the Contractor prior to the date of termination, it is understood and agreed that the Commissioner shall determine the value of such work rendered by the contractor. The Contractor shall accept such reasonable and good faith determination as final.

B. In the event the County determines that there has been a material breach by the Contractor of any of the terms of the Agreement and such breach remains uncured for forty-eight (48) hours after service on the Contractor of written notice thereof, the County, in addition to any other right or remedy it might have, may terminate this Agreement and the County shall have the right, power and authority to complete the Work provided for in this Agreement, or contract for its completion, and any additional expense or cost of such completion shall be charged to and paid by the Contractor. Without limiting the foregoing, upon written notice to the Contractor, repeated breaches by the Contractor of duties or obligations under this Agreement shall be deemed a material breach of this Agreement justifying termination for cause hereunder without requirement for further opportunity to cure."

SECTION 011000 – SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Work covered by Contract Documents.
2. Project completion date.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.

1.3 PROJECT INFORMATION

A. Project Identification:

1. Project Location: 1 Convention Center Plaza, Buffalo, NY 14202.

B. Site Availability: Site will be available to the contractors on **August 2, 2024**.

C. Project Schedule:

1. The site will be available for work related to the flooring and wall finishes on **August 2, 2024** and must be substantially completed by **August 30, 2024**.
2. The site will be available for work related to ceiling finishes, lighting, speakers, HVAC and fire protection work on **December 16, 2024** substantially completed by **January 15, 2025**.

D. Owner: Erie County Department of Public Works, 95 Franklin St. Buffalo, NY 14202

1. Owner's Representative: Danielle Melgar, danielle.melgar@erie.gov

E. Architect: Architectural Resources, 505 Franklin St, Buffalo, NY 14202

1. Architect's Representative: James Maurer, jmaurer@archres.com

F. Architect's Consultants: Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. MEP/FP: Buffalo Engineering
2. Audio/Visual Systems: Shen Milsom & Wilke

G. Project Coordinator for Multiple Contracts: General Contractor (General Construction Contract) shall serve as Project coordinator.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Interior upgrades to the lower-level ballroom within the Buffalo Convention Center, located at 1 Convention Center Plaza. Work includes, but is not necessarily limited to the following:

a. Selective demolition
b. Cutting and patching
c. Salvage and reuse of materials.
d. GWB Partitions and ceilings.
e. Refinishing doors.
f. Ceramic tiling.
g. Finishes.
h. Patching and paint.
i. Fabric-stretched ceilings and integral theatrical lighting
j. Mechanical upgrades.
k. Sprinkler system and fire alarm modifications.
l. Electrical modifications.
m. Audio system upgrades

B. Alternate Bids: Refer to Section 012300 "Alternates"

C. Type of Contract:

1. Project will be constructed under coordinated, concurrent multiple contracts. See Section 011200 "Multiple Contract Summary" for a description of work included under each of the multiple contracts and for the responsibilities of Project coordinator. Contracts for this Project include the following:

a. General Construction
b. Plumbing/Fire Protection
c. Electrical

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.6 ACCESS TO SITE

A. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. The Owner will continue to utilize other areas of the building for meetings, exhibitions, etc. as ordinary for use as a convention center facility. The building will remain occupied by the general public throughout the course of construction.
3. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.

E. Nonsmoking Building: Smoking is not permitted on the project site. or within 25 feet of entrances, operable windows, or outdoor-air intakes.

F. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 011200 - MULTIPLE CONTRACT SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.

B. Related Requirements:

1. Section 011000 "Summary" for the Work covered by the Contract Documents, restrictions on use of Project site, coordination with occupants, and work restrictions.

1.2 PROJECT COORDINATOR

A. Project coordinator shall be responsible for coordination as noted below, between the General Construction Contract, Plumbing/Fire Protection Contract and Electrical Contract.

1. The General Contractor (General Construction Contract) shall act as the Project Coordinator.

1.3 COORDINATION ACTIVITIES

A. Coordination activities of each Contractor's project manager include, but are not limited to, the following:

1. Provide typical overall coordination of the Work.
2. Coordinate shared access to workspaces.
3. Coordinator with "Work by Others" and separate contracts.
4. Provide overall coordination of temporary facilities and controls.
5. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
6. Coordinate construction and operations of the Work with work performed by each Contract and separate contracts.
7. Coordinate sequencing and scheduling of the Work including a combined contractors’ construction schedule for entire Project.
8. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
9. Coordinate cutting and patching.
10. Coordinate protection of the Work.
11. Coordinate firestopping.

12. Coordinate preparation of Project record documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
13. Print and submit record documents if installations by more than one contractor are indicated on the same contract drawing or shop drawing.
14. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form on combined record.

1.4 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.

1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
2. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work.
3. Furnishing of access panels for the work of each contract shall be the work of each contract for its own work. Installation of access panels shall be the work of the General Construction Contract.
4. Painting for the work of each contract shall be the work of the General Construction Contract.
5. Cutting and Patching: Each contract shall perform its own cutting; patching shall be under the General Construction Contract.
6. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.
7. Contractors' Startup Construction Schedule: Within five working days after startup horizontal bar-chart-type construction schedule submittal has been received from Project coordinator, submit a matching startup horizontal bar-chart schedule showing construction operations sequenced and coordinated with overall construction.

B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.

1.5 GENERAL CONSTRUCTION CONTRACT

A. Work of the General Construction Contract includes, but is not limited to, the following:

1. Coordination of multiple contracts (GC, FP & E)
2. Demolition.
3. Interior construction, including partitions, doors and fittings.
4. Ceilings.
5. Fire-protection specialties.

6. Interior finishes.
7. Finish carpentry and built-in casework.
8. Tiling and floor finishes.
9. Mechanical louvers and connections to existing HVAC systems.
10. Final Cleaning.
11. Remaining work not identified as work under other contracts.

B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:

1. Temporary facilities and controls that are not otherwise specifically assigned to other contracts.
2. General waste disposal facilities.

1.6 PLUMBING – FIRE PROTECTION CONTRACT

A. Work of the Plumbing-Fire Protection Contract includes, but is not limited to, the following:
1. Selective demolition of piping systems.
2. Fire protection systems.
3. Plumbing/fire protection connections to equipment and systems furnished by other contracts.

B. Special Notes to Plumbing / Fire Protection Contract
1. Sprinkler heads installed in upper ceiling coffers must be coordinated with the manufacturer of the selected specialty lighting system. Specialty lighting will include an acoustic scrim which sprinkler heads will penetrate. Penetrations are to be performed in accordance with manufacturer's instructions under the supervision of manufacturer’s approved personnel.

1.7 ELECTRICAL CONTRACT

A. Work of the Electrical Contract includes, but is not limited to, the following:

1. Electrical connections to equipment furnished by the Electrical Contract.
2. Selective demolition
3. Electrical service and distribution.
4. Interior lighting and controls.
5. Communication and security.
6. Fire alarm and detection systems.
7. Audio systems, including controls, wiring, devices and equipment.
8. Electrical connections to equipment furnished by other contracts.

B. Special Notes to Electrical Contract

1. Specialty lighting installed in upper ceiling coffer must be coordinated with locations of sprinkler heads furnished and installed by the plumbing / fire protection contract. Penetrations for sprinkler heads are to be performed in accordance with manufacturer's instructions under the supervision of manufacturer's approved personnel.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011200

SECTION 011500 - APPLICATION FOR PAYMENT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The Contractor for this work shall be held to have read: all of the Bidding Requirements, all of the County of Erie General Conditions, the Supplementary General Conditions, Information for Bidders, Division 1 and Contract Proposal Forms before submitting a tender for the proposed work, and in the execution of the work, he will be bound by all of the conditions and requirements therein.

B. Drawings and general provisions of the Contract, Division 01 Specification Sections, apply to this Section. All work shall comply with the New York State Uniform Fire Prevention and Building Code, latest edition.

1.2 GENERAL REQUIREMENTS

A. The Contractor shall submit an Application for Payment in accordance with the requirements stated in the General Conditions of the Contract Specifications and as specified in the Project Manual.

B. Prime Contractor to submit a list of emergency contacts of on-site personnel to contact in the event of an emergency prior to commencing work.

C. All documents required summarized herein are to be submitted to the Owner and the Architect/ Engineer via email or postal mail. The County will not approve pencil copies verbally. See Section 1.3 Review Procedure below for pencil copy procedure.

D. During Construction, Monthly Applications for Payment can be approved at a construction progress meeting as scheduled and documented in the Meeting Minutes or by written approval via email or other means as determined by the Owner.

1.3 REVIEW PROCEDURE

A. The Contractor shall submit a Schedule of Values in the 'Request For Payment Worksheet' format included within this specification to the Owner and the Architect/ Engineer for review and approval prior to submitting any pencil copy for approval or formal billing for any work.

a) All items already listed in the template provided shall be included as line items accordingly.

b) ALL subcontractors with their associated scope of work broken down by line item (row) shall be included as shown in the template provided in the attached. This includes all work that the prime contractor anticipates to be subcontracted to complete the project scope.

i. In the event a subcontractor has yet to be identified by the prime contractor, the anticipated scope of work for a subcontractor(s) shall be provided and broken down by line (row) item as shown to the best of the prime contractor's knowledge. The eventual subcontractor(s) used to complete a given scope of work can be listed on

future payment applications once a subcontractor is identified by the prime contractor.

ii. Work cannot be billed for until the subcontractor (if applicable) is identified for that specific scope/ portion of work related to the project on the Schedule of Values.

B. The Contractor, Architect/Engineer, Construction Inspector, and Construction Manager (when applicable) must review and approve all Preliminary Requests for Payment (Pencil Copies) prior to submission of the Monthly Application for Payment.

a. Pencil copy Requests for Payment attempting to forecast work yet to be completed (billing projections) will not be reviewed

b. The Contractor shall submit the pencil copy to the Owner and the Architect/ Engineer, billing for the work completed within the month prior, by the 15th of each month. At the contractors discretion and as authorized by the Owner, the Contractor may request to have the pencil copy submission date(s) and/or billing period for prior work completed modified.

C. After the Pencil Copies are approved, the Contractor shall forward the formal Monthly Application for Payment with all the required documents to the Architect/Engineer.

D. The Architect/Engineer must review the Applications for Payment to ensure that they are mathematically accurate and that all the required documents are included.

E. If any of the required documentation is missing or inaccurate, the Owner reserves the right to reject the Application for Payment return to the Contractor. Such action will be recorded in the minutes of the Project Meeting and/or notified by the Owner by email. The Owner is under no obligation to provide a list of missing items but may do so as a courtesy.

a. Rejected Applications for Payment must be corrected and re-submitted to the Architect/Engineer for approval.

F. If the required documentation is complete and accurate the Monthly Application for Payment will be approved and submitted processing once signed by all parties; The Owner, Contractor, Architect/Engineer, Construction Inspector, and Construction Manager (when applicable).

G. The Department of Public Works, Office of the Commissioner will receive and log-in the approved Monthly Application for Payment when received.

1.4 REQUIRED DOCUMENTS

A. The Contractor's Monthly Application for Payment **must include** one (1) set of originals comprised of the following:

1. Invoice: Printed on the Prime Contractor's own Letterhead.

2. Certificate for Payment: Signature sheet for payment certification and approval.

3. Request for Payment Worksheets: Labor and material costs itemized by Specification Division of Work and/or separated by scope of work of subcontractors.

4. Contractor's & Sub-Contractor's Payment Certification (CPC-1 form): To be completed separately by Prime Contractor and ALL associated Sub-Contractors. This includes Sub-

Contractors to the Prime Contractor as well as any associated Sub-Contractors to Sub-Contractors associates with the project.

a. Note that Sub-Contractor(s) and named on the Prime Contractor's CPC form must also complete this form separately. Sub-Contractors to Sub-Contractors to the Prime Contractor also need to complete a separate form.

5. MBE/WBE/SDVOB Utilization Forms: Part B - at 30% completion, Part C - at 75% completion to be completed by Prime Contractor.

   a. MBE/WBE/SDVOB Utilization Forms as required are included within the General Conditions – Appendix A

6. Certified Payroll Records, from each Prime Contractor and from each Sub-Contractor associated with the project: Certified Payroll Records are to be submitted electronically via LCP Tracker per the General Conditions included as part of this project manual.

   a. All contractors, including any associated subcontractor performing work on the project, are to submit certified "Non-performing weeks" if no work was performed. This is for all weeks for each (sub)contractor applicable to their respective scope of work from the when work commences to when the work is completed.

   b. When each respective (sub) contractor scope of work is complete, the certified payroll for the last week on the project is to be marked "Final" in LCPtracker.

7. Certificate of Insurance for Stored Materials (when applicable): To be completed by Prime Contractor only when billing for stored materials not yet delivered to the jobsite, per sections 4.03, 5.02, and 7.02 of the General Conditions.

B. The Contractor's **FINAL** Application for Payment including **retention only must include** one (1) set of originals comprised of the following:

1. Invoice: Printed on the Prime Contractor's own Letterhead.

2. Certificate for Payment: Signature sheet for payment certification and approval.

3. Request for Payment Worksheets: Labor and material costs itemized by Division of Work and/or separated by scope of work of subcontractors.

4. Final Waiver of Lien and Claim (FW-1 form): Affix with Notary Stamp. To be completed by Prime Contractor and ALL associated Sub-Contractors.

5. Form of Guarantee (F.G.-1 form): To be completed by Prime Contractor only.

6. Form of Affidavit For Final Payment (F.A.-1 form): To be completed by Prime Contractor only.

7. Public Improvement Contractor Certification (PICC-2 form): To be completed by Prime Contractor.

8. Public Improvement Contractor Certification (PICC-1 form): To be completed separately by all Sub-Contractors (if applicable).

9. MBE/WBE/SDVOB Utilization Form Part D - at 100% completion: To be completed by Prime Contractor only.

10. Executive Order 18 Workers Compliance Certification (EO18-1 form) (if applicable): To be completed by Prime Contractor only.

11. Apprenticeship Utilization Certification (AU-1 form) (if applicable): To be completed by Prime Contractor only.

ALL SIGNATURES ON ALL FORMS NOTED ABOVE MUST BE ORIGINAL SIGNATURES

1.5 DISTRIBUTION

A. In addition to including MWBE/SDVOB forms with the payment application, the Prime Contractor must mail separately, one (1) copy of the MBE/WBE/SDVOB Utilization forms Part B, Part C, and Part D forms at 30% completion, 75% completion, and 100% completion respectively to the Erie County Division of Equal Employment Opportunity, 95 Franklin St., Buffalo, New York, 14202.

B. If deemed applicable to the underlying project, the Prime Contractor and all subcontractors shall provide monthly reports demonstrating good faith efforts to meet the requirements outlined in Executive Order #18 dated September 27, 2017 and Local Law 3-2018 via LCPtracker.

1.6 STANDARD FORMS

A. THE ERIE COUNTY DEPARTMENT OF PUBLIC WORKS' STANDARD FORMS MUST BE USED IN ALL APPLICATIONS FOR PAYMENT. AIA (AMERICAN INSTITUTE OF ARCHITECTS) FORMS OR ANY OTHER FORMS WILL NOT BE ACCEPTED IN LIEU OF THE ABOVE. THE STANDARD FORMS ARE ANNEXED HERETO FOR CONTRACTOR'S REFERENCE AND USE.

CONTRACTOR'S MONTHLY APPLICATION FOR PAYMENT CHECKLIST

PROJECT NAME: _____ PAYMENT NO.: _____

DPW PROJECT NO.: _____ CONTRACTOR NAME: _____ DATE: _____

*Prime/Sub-Contractor Name	Invoice	Certificate For Payment	Request for Payment Worksheet	Contractor's Payment Certification (CPC-1)	M/WBE& SDVOB Utilization Part B-30%	M/WBE& SDVOB Utilization Part C-75%	Certified Payroll Records	Certification for Stored Materials	*Subs Included in this Pay App.	Comments

*Prime Contractor shall list all sub-contractors included in their scope of work and shall make a check mark (Subs included column) for those sub-contractors covered under this payment application. Refer to Section 011500 - Application for Payment for additional payment information, requirements and procedures for Reduction in Retention and Final Payment.

SAMPLE INVOICE
(ON YOUR OWN LETTERHEAD)

X.Y.Z. CO., INC.
499 Elm Avenue
P.O. BOX 9-C
Buffalo, NY 14000
Telephone: (716) 666-8888

Date: _____

Payment No.: _____

To: COUNTY OF ERIE
DEPARTMENT OF PUBLIC WORKS – OFFICE OF THE COMMISSIONER
14TH FLOOR
95 FRANKLIN STREET, ROOM 1408
BUFFALO, NY 14202

Re: PROJECT NAME: _____

DPW PROJECT NO.: 2021-XXX-01

BILLING PERIOD: From 1/1/2021 to: 1/31/2021

ORIGINAL CONTRACT AMOUNT:		$	0.00
CHANGE ORDER:	NO.: _____	$	0.00
	NO.: _____	$	0.00
	NO.: _____	$	0.00
CONTRACT SUM TO DATE:		$	0.00

Total Complete to Date:	$	0.00
Less 5% Retainage:	$	0.00
Total Earned Less 5% Retainage:	$	0.00
Less Previous Payments	$	0.00
Current Amount Due:	$	0.00

VENDOR NO: xxxxxx

CE/PO NUMBER: CE40000XXXXX

CONTRACT DOC NO: XX-XXX-PW

SAP WBS NO: X.XXXXX.X

CERTIFICATE FOR PAYMENT

PROJECT NAME: _____

CONTRACTOR NAME: _____

DPW PROJECT NO.: _____ **PAYMENT NO.:** _____

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Undersigned certifies to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Amount Certified.

AMOUNT CERTIFIED ..... $_____

Contractor Company Name	Contractor Representative's Name	Signature	Date
Architect/Engineer Firm Name	Architect/Engineer Representative's Name	Signature	Date

Erie County DPW

Construction Inspector (Owner)	Construction Inspector (Owner) Name	Signature	Date

Erie County DPW

Project Manager (Owner)	Project Manager (Owner) Name	Signature	Date

This Certificate is not negotiable. The **AMOUNT CERTIFIED** is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

REQUEST FOR PAYMENT - WORKSHEETS

PROJECT NAME: _____ **SHEET#:** _____ **OF** _____

CONTRACTOR NAME: _____ **DPW PROJECT NO.:** _____ **PAYMENT NO.:** _____

TYPE OF CONSTRUCTION WORK: _____ **BILLING PERIOD: FROM** _____ **TO** _____ **DATE:** _____

ITEM NO.	ITEM	ITEM PRICE		PERCENT COMPLETE		AMOUNT COMPLETE TO DATE		AMOUNT PREVIOUSLY BILLED		AMOUNT THIS BILLING		AMOUNT UNBILLED	
		L	M	L	M	L	M	L	M	L	M	L	M
PREVIOUS SUBTOTAL(If Applicable)													
PRIME CONTRACTOR – XYZ COMPANY													
1	Mobilization												
2	Bonds and Insurances												
3	Supervision												
4	Temporary Facilities/ Conditions												
SUBCONTRACTOR(S) as applicable – XYZ COMPANY (All subs are to be listed with their respective scopes of work)													
X	Building/ Project Cleaning												
X	Clsoeout Docs/ Record Drawings												
X	Oper. & Maint. Manuals												
SHEET SUBTOTAL													

REQUEST FOR PAYMENT - WORKSHEETS

PROJECT NAME: _____ **SHEET#:** _____ **OF** _____

CONTRACTOR NAME: _____ **DPW PROJECT NO.:** _____ **PAYMENT NO.:** _____

TYPE OF CONSTRUCTION WORK: _____ **BILLING PERIOD: FROM** _____ **TO** _____ **DATE:** _____

ITEM NO.	ITEM	ITEM PRICE		PERCENT COMPLETE		AMOUNT COMPLETE TO DATE		AMOUNT PREVIOUSLY BILLED		AMOUNT THIS BILLING		AMOUNT UNBILLED	
		L	M	L	M	L	M	L	M	L	M	L	M
PREVIOUS SUBTOTAL(If Applicable)													
NO.	ALLOWANCES (IF Applicable)												
CONTRACT TOTALS													
CONTRACT GRAND TOTAL													

NO.	APPLIED CHANGE ORDERS												
	Change Order X-0X												
CHANGE ORDER TOTALS													
CHANGE ORDER GRAND TOTAL													

ADJUSTED TOTALS													
ADJUSTED GRAND TOTAL													

COUNTY OF ERIE DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

CONTRACTOR'S & SUB-CONTRACTOR'S PAYMENT CERTIFICATION TO THE COMPTROLLER OF THE COUNTY OF ERIE, NEW YORK

BILLING PERIOD (to match invoice): From: _____ to: _____

Pursuant to the _____ work for
(type of work or contract)
_____ shown on the attached payment request,
(name of project)

I CERTIFY
(1) That the following constitute all the sub-contractors employed by me on this work during the period covered by this request (any sub-contractor named below must also submit this form separately. If none, so state). If there are more contractors than lines shown below, please provide an attached list with the signed/ notarized form:

NAME	ADDRESS

(2) That the following constitute all claims by sub-contractors & suppliers for material, labor and/or supplies used by me on this work, which are due and payable and have not been paid (If none, so state):

NAME	ADDRESS	AMOUNT

(3) That the following constitute all laborers employed by me on this work who are unpaid and the amount due each (If none, so state):

NAME	ADDRESS	AMOUNT

(4) That all employees engaged by me on this work have been paid the prevailing rate of wages on prevailing rate schedule case no._____
(PRC)

Dated: _____ CONTRACTOR:_____

BY:_____

TITLE:_____

State of New York}
County of Erie }

_____being duly sworn, deposed and says, that he is the
_____ of the above company; that he has read the above statement:
that he knows the contents thereof, and that the same is true of his own knowledge.

_____
Commissioner of Deeds or Notary Public, Erie County

FINAL WAIVER OF LIEN AND CLAIM

To: County of Erie

(Owner)

From:

(Name of Contractor Company)

(Address of Contractor Company)

Project:

The undersigned Contractor, Subcontractor or Supplier Company (hereinafter "Contractor"), for and in consideration of the sum of $ _____being payment for any and all work performed, services rendered and / or materials furnished with respect to the aforementioned Project, under all contracts, orders and instructions, including extras, written, and for other goods and valuable consideration paid by Owner, the receipt and sufficiency of which is hereby acknowledged, hereby covenants and warrants:

1. Contractor does hereby waive, release and relinquish any and all claims, demands and rights of lien to the extent of the amount shown hereon and previously paid for all work, labor, materials, machinery or other goods, equipment or services done, performed or furnished for the construction located at the project described above.
2. Contractor warrants that it has not been delayed in the performance of its works to date and that it has incurred no extra costs in connection herewith. The undersigned specifically waives, relinquishes and releases any and all claims incurred or alleged in connection with its work to date except only those claims, if any, previously denominated as claims and warrants and represents that any and all valid labor and / or materials and equipment bills, now due and payable, on the project herein above described on behalf of the undersigned have been paid in full to date of this waiver, or will be paid from these funds.
3. Contractor hereby agrees to indemnify and defend the Owner and to hold them free and harmless from any and all loses, claims, damages and expenses, including attorney's fees, arising directly or indirectly from any inaccuracy recited in the facts herein, from any failure to the Contractor to pay in full all sums due its laborers, subcontractors, material men and suppliers on the project, or from any liens against the project moneys filed by any such laborer, subcontractor, material men or suppliers.

Total Contract to Date: $

Due on Total Contract (after above payment): $

Contractor

Print Name:

Signature:

Title:

Notary Public

Sworn to before me on this _____ Day of

_____

Signature:

(Affix Notary Stamp)

OFFICE OF THE COMPTROLLER

PUBLIC IMPROVEMENT CONTRACT CERTIFICATION

Name of Project:_____

Prime Contractor Certification

1. I am an officer of_____
and am duly authorized to make this affidavit on behalf of the prime contractor on public contract No. _____.

2. I fully comprehend the terms and provisions of Section 220-a of the New York State Labor Law.

3. Except as herein stated, there are no amounts due and owing to or on behalf of laborers employed on the project by the contractor. (Set forth any unpaid wages and supplements; if none, so state.)

Name	Amount

4. The contractor hereby files every verified statement required to be obtained by the contractor from the subcontractor(s).

5. Upon information and belief, except as stated herein, all laborers (exclusive of executive or supervisory employees) employed on the project have been paid the prevailing wage and supplements for their services through _____ (if more than one subcontractor, list name and date separately), the last day worked on the project by their subcontractor(s). Set forth any unpaid wages and supplements; if none, so state and utilize clause 6.

Name	Amount

6. The contractor has no knowledge of amounts owing to or on behalf of any laborers of its subcontractor(s).

7. Pursuant to Section 223 of the New York State Labor Law, the contractor shall be responsible if the State Commissioner of Labor determines that wages and/or supplements were not paid or provided to employees of its subcontractor(s) in accordance with the appropriate schedule.

I have read the foregoing statements and any schedules attached hereto and know the contents thereof, and I hereby verify that the same is true of my own knowledge, except that the statement with respect to wages and supplements owing by subcontractor is certified upon information and belief.

_____
Signature

_____
Print Name

_____
Title

ACKNOWLEDGEMENT:

STATE OF NEW YORK
COUNTY OF _____ :SS: _____

On this _____day of_____

before me personally came_____to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same.

_____
Notary Public

_____
County

If this affidavit is verified by an oath administered by a notary public in a foreign county other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Sect. 2309 (c); Real Property Law, Sect. 311, 312.)

COUNTY OF ERIE DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

OFFICE OF THE COMPTROLLER

PUBLIC IMPROVEMENT CONTRACT CERTIFICATION

Subcontractor Certification

Name of Project:_____

1. I am an officer of _____

   a subcontractor on public contract no. _____and I am duly authorized to make this affidavit on behalf of the firm.

2. I make this affidavit in order to comply with the provisions of Section 220-a of the New York State Labor Law.

3. On _____we received from _____, the prime contractor, a copy of the initial/revised schedule of wages and supplements.

   Prevailing Rate Schedule Case Number _____(PRC) specified in the public improvement contract.

4. I have reviewed such schedule(s) and agree to pay the applicable prevailing wages and to pay or provide the supplements specified therein.

_____
Signature

_____
Print Name

_____
Title

ACKNOWLEDGEMENT:

STATE OF NEW YORK
COUNTY OF _____ :SS: _____

On this_____day of_____ before me personally came

_____to me known and known to me to be the person described in and who executed the foregoing instruction and acknowledged that he executed the same.

_____
Notary Public

_____
County

If this affidavit is verified by an oath administered by a notary public in a foreign county other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Sect. 23099c); Real Property Law, Sect. 311, 312.)

COUNTY OF ERIE DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

FORM OF GUARANTEE

DATE OF SUBSTANTIAL COMPLETION: _____

BUILDING: _____

OWNER: COUNTY OF ERIE

Gentlemen:

The undersigned guarantees the _____ work
(type of work)

for the _____ under its contract
(name of project)

dated _____ with the COUNTY OF ERIE and change orders thereto, be in accordance with drawings and specifications prepared

by: _____
(Name of Architect or Engineer)

including approved modifications to said drawings and specifications, and to be free from imperfect workmanship and/or materials.

Furthermore, the undersigned agrees to repair at its own expense, for a period of two (2) years from the date of substantial completion,
all of the _____ work covered
(type of work)

under said contract and change orders, that may prove defective.

Furthermore, the undersigned also agrees to pay the cost of repairing all damages to other work resulting from the defects in its own work and to pay the cost of replacing other work which the undersigned may disturb in making good defects in its own work.

It is also understood that COUNTY OF ERIE and/or Architect/Engineer shall give notice of observed defects with reasonable promptness, and all questions arising under this guarantee shall be decided by the COUNTY OF ERIE.

All corrections to defective work are to be done promptly and at the convenience of the Owner. Access to the work is to be scheduled by the Owner during normal working hours.

_____
Contractor

By:_____

Witness: _____ Date: _____

Note: This form shall be executed in duplicate with original signatures.

COUNTY OF ERIE DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER

FORM OF AFFIDAVIT

FOR FINAL PAYMENT

STATE OF NEW YORK

COUNTY OF ERIE

_____being duly sworn, deposes and

says that (s)he is the contractor for _____ in the
(kind of work)

construction of _____
(Name of Project)

for COUNTY OF ERIE, the Owner; and says that (s)he is the

_____
(President or Vice President) (Secretary or Treasurer)

of _____ the contracting corporation.
(Name of Firm)

Deponent states that all bills and claims against the undersigned and his sub-contractors for labor, materials and equipment employed in the performance of this contract have been paid in full except the bill and claims listed below or on the schedule attached hereto.

(IF NONE, SO STATE)

_____
(Name of Contractor)

"SEAL" By _____

Sworn to before me this

_____ day of _____, 20_____

_____
Notary Public or Commissioner of Deeds

NOTE: This form shall be executed in duplicate with original signatures.

APPRENTICESHIP UTILIZATION
CERTIFICATION FOR FINAL PAYMENT

STATE OF NEW YORK

COUNTY OF ERIE

_____ being duly sworn, deposes and says that he is the Contractor for the work associated with _____

_____ for the COUNTY OF ERIE, the Owner; and says that he is the _____

_____, the contracting company.

Deponent certifies that in accordance with Erie County Local Law 3-2018, _____% is the final percentage of persons participating in an apprenticeship program that the undersigned employed in the performance of this Contract.

Deponent further states that he has read the above statement and knows the content thereof, and that the same is true of his own knowledge.

_____
(Name of Contractor)

"CORPORATE
SEAL"

By_____

Sworn to before me this

_____day of_____, 20____.

_____
Notary Public or Commissioner of Deeds

ERIE COUNTY LOCAL AND DISADVANTAGED WORKER COMPLIANCE CERTIFICATION

In order to comply with Erie County Executive Order #18 dated September 27, 2017 we hereby make the following certification for the _____project:
(name of project)

_____ 1) We hereby certify that, including any and all subcontracted work hours used on the project, we are in full compliance with Erie County Executive Order #18.

OR,

_____2) We hereby certify that on _____ ____, _____ we submitted a partial waiver request to the Erie County Office of Equal Employment Opportunity. Such request for partial waiver was granted on _____, ___ _____. The conditions granted to us under this partial waiver allow for
_____
_____
_____
We further certify that we are in compliance with all conditions granted to us under this partial waiver.

We understand that this certification is a material component of this contract. Violation of the provisions of Executive Order #18 will constitute grounds for the immediate termination of this Agreement and will further result in the Contractor being deemed a non-responsible bidder for a period of twelve months. Once grounds for immediate termination are established, actual contract termination will be at the discretion of Erie County.

_____
Company

_____
Signature

Verification

STATE OF NEW YORK)
COUNTY OF ERIE) SS:

A)
_____, being duly sworn, states he or she is the owner of (or partner in) _____, and is making the foregoing Attestation and Statement of Workforce and that such representations made are true to his or her own knowledge.

B)
_____, being duly sworn, states that he or she is the (Name of Corporate Officer) _____, of (Name of Corporation or Enterprise)_____, that he or she has read the Attestation and Statement of Workforce and that such representations made are true to his or her knowledge, and are made at the direction of the Board of Directors of the Corporation.

Sworn to before me this _____
Day of _____. 20_____

_____
Notary Public

EXECUTIVE ORDER NO. 18
ERIE COUNTY LOCAL AND DISADVANTAGED
WORKER COMPLIANCE CERTIFICATION – WAIVER REQUEST

COMPANY: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

ADDRESS / PHONE: _____

Waiver Request Requirements are as follows:

1. Contractor has made a good faith effort to meet the requirements of Executive Order No. 18.

2. This waiver request form is to be accompanied with a detailed description of reasons to grant the waiver request on company letterhead per the requirements included in the Rules and Regulations "Waiver Process".

3. In the event Contractor is seeking a waiver due to **workforce** challenges, Contractor must provide proof of the following:

   a. Job postings per the Rules and Regulations and a description of candidate responses; and/or
   b. A copy of the company's collective bargaining or other legally binding agreement(s) (i.e. union signatory agreements or exclusivity agreements, etc.) and a description of how Contractor attempted to meet E.O. 18 requirements via this hiring process.

4. In the event Contractor is seeking a wavier due to **specialized work**, Contractor must provide a description of the specialized work, the particular skills and/or licenses required to complete such work and the reasons why a waiver is needed.

5. If a partial waiver is granted, Contractor is required to be in full compliance with the adjusted requirements.

A waiver provided for Executive Order No. 18, is hereby requested on the grounds that we have met the job posting requirements of the waiver process and are seeking a reduction of the following workforce requirements:

Percentage Required	**Percentage Requested**
Local Labor (100%):	_____
Erie County (70%):	_____
Disadvantaged (30%):	_____

-OR-

A waiver provided for Executive Order No. 18, is hereby requested due to the nature of specialized work and the revised dollar amounts of the contract are proposed to be as follows:

Original Awarded Contract Value: $_____

Proposed Decrease in Contract Value subject to EO 18 requirements: $_____
(if requesting partial waiver)

Revised Contract Value subject to subject to EO 18 requirements: $_____

_____ _____
SIGNATURE OF AUTHORIZED REPRESENTATIVE | DATE

FOR ERIE COUNTY APPROVAL:

_____ _____
Office of Equal Employment Opportunity | Erie County Department Representative

SECTION 012300 – ALTERNATE BIDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if 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 Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other work of the Contract.

C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate 1: Linear light fixtures at low ceiling

1. Base Bid: Remove existing textured plaster finish at underside of coffered ceilings. Patch and paint existing gypsum board ceiling. Provide recessed linear LED light fixture LF-6 (Base Bid) in locations indicated on Drawings.
2. Alternate: Omit modification of framing required for installation of fixture LF-6 (Base Bid), as shown in Detail 2/A-110. In lieu of light fixture LF-6 (Base Bid), provide linear light fixture LF-6 (ALT-1)at underside of coffered ceilings. Provide controls associated with LF-6 (ALT-1).

B. Alternate 2: Remove textured wall covering and add wall grazer lighting

1. Base Bid: Paint existing textured wall covering.
2. Alternate: Remove existing textured wall covering at east wall. Patch and paint gypsum substrate. Finish color to be PT-1 as indicated on Sheet A-800. Provide light fixture LF-3 along east wall of ballroom as indicated on Sheet E-101 and included in “Light Fixture Schedule” on Sheet E-001.

C. Alternate 3: Modify low coffer ceiling

1. Base Bid: Remove existing textured plaster finish at underside of coffered ceilings. Patch and paint existing gypsum board ceiling.
2. Alternate: Remove gypsum wall board and framing at underside of coffered ceiling. Remove gypsum board and angled framing to a point 11 inches above existing lowest ceiling surface. Provide wood blocking at remaining metal framing and attach gypsum board at modified height. Include linear lighting fixtures described in Alternate #1.

D. Alternate 4: Additional partition construction and porcelain floor/wall tile

1. Base Bid: Paint existing textured wall covering and replace carpet flooring with CPT-1 indicated on Sheet A-801.
2. Alternate: Remove existing textured wall covering and wood chair rail at east wall as shown on Sheet AD-100. Construct additional metal-stud partitions and furring around structural steel columns located near the east wall of Room 101. Provide tile backer and porcelain wall tile FLT1 as indicated on Sheet A-801 and specified in Section 093013 “Ceramic Tiling”. Provide porcelain floor tile FLT1 to extent shown on Sheet A-801 and specified in Section 093013 “Ceramic Tiling”.

END OF SECTION 012300

SECTION 017700 – CLOSEOUT PROCEDURES

PART I – GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.

B. Related Section:

1. Division 1 Section "Project Record Documents: for submitting Record Drawings, Record Specifications, and Record Product Data.
2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. All Divisions for "Demonstration and Training" for requirements for instructing Owner's personnel.
4. All Divisions for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds. Maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manual, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover
8. Complete startup testing of systems.

9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in hear and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issues.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding form lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Submit list of incomplete items in the following format:
   a. One electronic copy in Portable Data File (PDF) format provided to the Owner and Architect/ Engineer.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties per General Conditions of the Contract, specifically Section 4.09, on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind two sets of warranties and bonds in heavy-duty, 3-ring, vinyl-covered, lose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 ½ - 11 inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title “WARRANTIES”, Project name, and name of contractor.
4. Provide one CD or USB flash drive to contain all scanned warranties and bonds. Assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 – EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with General Conditions of the Contract, specifically Section 4.08, all local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project sire, 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.
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.
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 "URL" 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. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

q. 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.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

END OF SECTION

SECTION 017823 – OPERATIONS AND MAINTENANCE DATA

PART I – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. Operation and Maintenance manuals for systems, subsystems, and equipment.
2. Maintenance manuals for the care and maintenance of products, materials, and finishes.

B. Related Sections include the following:

1. Division 1 Section “Submittal Procedures” for submitting copies of submittals for operation and maintenance manuals.
2. Division 1 Section “Closeout Procedures” for submitting operation and maintenance manuals.
3. All Divisions Sections for specific operation and maintenance manual requirements for products in those Sections.

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 SUBMITTALS

A. Final Submittal: Submit each manual in electronic portable data file (pdf) format at least 15 days before final inspection to Architect/ Engineer of Record. Architect/ Engineer will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with comments provided by Architect/ Engineer. Submit one (1) hard copy and one (1) electronic copy in Portable Data File (pdf) format of the corrected Operation & Maintenance Manual within 15 days of receipt of Architect’s comments for submission to the Owner.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 – PRODUCTS

2.1 MANUAL, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following material, in the order listed:

1. Title Page
2. Table of Contents
3. Manual Contents

B. Title Page: Enclose title page in transparent plastic sleeve. 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, address, and telephone number of Contractor
6. Name and address of Architect
7. 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 column, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive Table of Contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystem, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2- by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENACE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch, 20-lb/sq.ft. white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION AND MAINTENACE MANUALS

A. Content: In addition to requirements in this Section, include operation and maintenance data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions
2. Performance and design criteria if Contractor is delegated design responsibility
3. Operating standards
4. Operating procedures
5. Wiring diagrams
6. Control diagrams
7. Piped system diagrams
8. Precautions against improper use
9. License requirements including inspection and renewal dates
10. Warranty information

B. Descriptions: Include the following:

1. Product name and model number

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. Start-up 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 operations, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

F. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly
3. Identification and nomenclature of parts and components
4. List of items recommended to be stocked as spare parts

G. 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 videotape, if available

H. 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

I. 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.

J. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

K. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

L. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include instructions and procedures for each type of emergency, and responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

1. Include the following, as applicable:

a. Instructions on stopping
b. Shutdown instructions for each type of emergency
c. Operating instructions for conditions outside normal operating limits
d. Required sequences for electric or electronic systems
e. Special operating instructions and procedures

2.3 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

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 Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 – EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

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 manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

E. Comply with Division 1 Section "Closeout Procedures" for the schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 017839 – PROJECT RECORD DOCUMENTS

PART I – GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings
2. Record Specifications
3. Record Product Date

B. Related Sections:

1. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
2. All Divisions for specific requirements for project record documents of the Work in those Sections.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit record drawings as follows:

a. Initial Submittal: Submit one set of marked-up (red-lined) record prints in electronic portable data file (PDF) format inclusive of all addendum, sketches, work change directives, change orders and field revisions to Architect for review. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
b. Final Submittal: Submit one set of marked-up (red-lined) record prints in electronic portable data file (PDF) format and one set hard paper copy incorporating Architect's comments to Architect and Owner. Provide each drawing, whether or not changes were applicable to any given specific drawing/ sheet.

B. Record Specifications: Submit one hard paper copy and electronic portable data file (PDF) format of the Project's Specifications, including addenda and contract modifications to the Owner and Architect.

PART 2 – PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.
   1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record date, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Record data as soon as possible after obtaining it.
      c. Record and check the markup before enclosing concealed installations.

   2. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.
   3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same locations.
   4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion and in accordance with Section 1.2 of this specification, review marked-up record prints with Architect and/or Construction Manager. When authorized, prepare a full set of corrected red-lines, as follows:

   1. Copies: One (1) electronic copy provided on a CD or USB flash drive in portable data file (PDF) format.
   2. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
   3. Format: Annotated PDF electronic file with comment function enabled.
   4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
   5. Refer instances of uncertainty to Architect for resolution.
   6. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.

C. Format: Identify and date each record Drawing; include the designation “PROJECT RECORD DRAWING” in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
   a. Project Name
   b. Date
   c. Designation "PROJECT RECORD DRAWINGS"
   d. Name of Architect
   e. Name of Contractor

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from the 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. Note related Change Orders and record Drawings where applicable.

B. Format: submit record Specifications as PDF electronic file.

2.3 RECORD PRODUCT DATE

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 Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, and record Drawings where applicable.

B. Format: Submit record Product Data as paper copy within the Operation and Maintenance Manual and one electronic copy in portable data file (pdf) format. .

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format; Submit record submittals as paper copy.

PART 3-EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.
B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for contraction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 INFORMATIONAL SUBMITTALS

A. Predemolition Photographs or Video: Submit before Work begins.

1.4 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.5 WARRANTY

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

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs .

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

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:
   1. Wood blocking and nailers.
   2. Wood sleepers.

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
   2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2[for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground].

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Rooftop equipment bases and support curbs.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 or ICC-ES AC193 as appropriate for the substrate.

1. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Do not splice structural members between supports unless otherwise indicated.

D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

E. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

F. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use copper naphthenate for items not continuously protected from liquid water.

G. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

H. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

I. Use stainless steel nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILER

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Nonstaining silicone joint sealants.
2. Urethane joint sealants.
3. Mildew-resistant joint sealants.
4. Latex joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Field-adhesion-test reports.

C. Sample warranties.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with stone masonry concrete substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.6 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:

1. Architectural sealants shall have a VOC content of 250 g/L or less.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

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

a. Dow Corning Corporation; 791.
b. Pecora Corporation; PCS.
c. Sika Corporation U.S.; Sikasil WS-295.

2.3 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

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

a. Dow Corning Corporation; 795.
b. Pecora Corporation; 864NST.
c. Tremco Incorporated; Spectrem 2.

2.4 URETHANE JOINT SEALANTS

A. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT.

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

a. BASF Construction Chemicals - Building Systems; Sonolastic SL 1.
b. Pecora Corporation; NR-201.
c. Sherwin-Williams Company (The); Stampede 1SL.

2.5 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

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

a. Dow Corning Corporation; 786-M White.
b. May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 100 WF.
c. Tremco Incorporated; Tremsil 200.

2.6 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

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

a. BASF Construction Chemicals - Building Systems.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:

   a. Perform tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
   b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:

a. Isolation joints in cast-in-place concrete slabs.
b. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, S, P, 25, T, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.

1. Joint Locations:

a. Control joints on exposed interior surfaces of exterior walls.
b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
c. Other joints as indicated on Drawings.

2. Joint Sealant: Acrylic latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.

D. Joint-Sealant Application: Concealed mastics.

1. Joint Locations:

a. Aluminum thresholds.
b. Sill plates.

2. Joint Sealant: Butyl-rubber based.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

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:

1. Non-load-bearing steel framing systems for interior partitions.
2. Suspension systems for interior ceilings and soffits.
3. Grid suspension systems for gypsum board ceilings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for steel unless otherwise indicated.
2. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized unless otherwise indicated.

B. Studs and Tracks: ASTM C 645.

1. Steel Studs and Tracks:

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

1) ClarkDietrich Building Systems.
2) MarinoWARE.
3) Steel Network, Inc. (The).

b. Minimum Base-Steel Thickness: As indicated on Drawings.
c. Depth: As indicated on Drawings.

2.2 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch- diameter wire.

B. Hanger Attachments to Concrete:

1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 AC193 AC58 or AC308 as appropriate for the substrate.

a. Type: Torque-controlled, expansion anchor torque-controlled, adhesive anchor or adhesive anchor.

C. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armstrong World Industries, Inc; Drywall Grid Systems.
b. Chicago Metallic Corporation.
c. United States Gypsum Company.

2.3 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Drift Clips:

1. Comply with requirements for general framing members.

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

1) ClarkDietrich Building Systems.
2) MarinoWARE.
3) Steel Network, Inc. (The).

3. Manufacturer's standard bypass clips with horizontal standoff, capable of isolating wall stud from upward and downward vertical displacement of primary structure through positive mechanical connection to adjacent construction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

E. Direct Furring:

1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING CEILING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Hangers: 48 inches o.c.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

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:

1. Interior gypsum board.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints.
2. Section 093013 "Ceramic Tiling" for cementitious backer units installed as substrates for ceramic tile.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.

B. Regional Materials: Gypsum panel products shall be manufactured within 500 miles of Project site.

C. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

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

1. American Gypsum;
2. Georgia-Pacific Building Products.
3. National Gypsum Company;
4. United States Gypsum Company.

B. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

C. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: As indicated.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Paper faced, galvanized steel sheet or rolled zinc.
2. Shapes:

    a. Cornerbead.
    b. LC-Bead: J-shaped; exposed long flange receives joint compound.
    c. L-Bead: L-shaped; exposed long flange receives joint compound.

2.5 REVEALS

A. Reveal molding: ASTM C 1047

1. Manufacturer: Fry Reglet; or approved equal.
2. Material: Aluminum.
3. Shapes: As indicated on Drawings.
4. Finish: Powder-coated white

2.6 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

    a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

D. Joint Compound for Tile Backing Panels:

1. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.7 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
2. Recycled Content of Blankets: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 10 percent.

D. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch-wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Wallboard Type: As indicated on Drawings.
2. Type X: As indicated on Drawings.

3. Moisture- and Mold-Resistant Type: As indicated on Drawings; at all wet locations including toilet rooms, janitor closet, sinks etc.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 APPLYING TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.

B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.5 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.
2. LC-Bead: Use at exposed panel edges.
3. L-Bead: Use where indicated.

C. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

3.6 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

    a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

E. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.7 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

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:

1. Porcelain tile.
2. Stone thresholds.
3. Tile backing panels.
4. Waterproof membrane for thinset applications.
5. Crack isolation membrane.
6. Metal edge strips.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in its "Specifications for Installation of Ceramic Tile."

C. Face Size: Actual tile size, excluding spacer lugs.

D. Module Size: Actual tile size plus joint width indicated.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.
2. Review seam locations and tile patterns.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Full-size units of each type of trim and accessory for each color and finish required.
3. Stone thresholds in 6-inch lengths.
4. Metal edge strips in 6-inch lengths.

1.6 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of product.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Store liquid materials in unopened containers and protected from freezing.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Tile: Obtain tile of each type and color or finish from single source or producer.

1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from single manufacturer and each aggregate from single source or producer.

1. Obtain setting and grouting materials, except for unmodified Portland cement and aggregate, from single manufacturer.
2. Obtain waterproof membrane and crack isolation membrane, except for sheet products, from manufacturer of setting and grouting materials.

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer:

1. Stone thresholds.
2. Waterproof membrane.
3. Crack isolation membrane.
4. Cementitious backer units.
5. Metal edge strips.

2.2 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements unless otherwise indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

A. Ceramic Tile Type: Porcelain floor tile.

1. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated on the drawings or approved equal by one of the following:

    a. American Olean; a division of Dal-Tile Corporation.
    b. Crossville, Inc.
    c. Daltile.
    d. Florida Tile, Inc.

2. Certification: Tile certified by the Porcelain Tile Certification Agency.
3. Face Size: As indicated on Drawings.
4. Thickness: As indicated on Drawings.
5. Face: As indicated on Drawings.
6. Dynamic Coefficient of Friction: Not less than 0.42.
7. Tile Color, Glaze, and Pattern: As indicated on Drawings.
8. Grout Color: As indicated on Drawings.

B. Ceramic Tile Type: Porcelain wall tile.

1. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated on the Drawings or approved equal by one of the following:

    a. American Olean; a division of Dal-Tile Corporation.
    b. Crossville, Inc.
    c. Daltile
    d. Florida Tile, Inc.

2. Certification: Tile certified by the Porcelain Tile Certification Agency.
3. Face Size: As indicated on Drawings.

4. Thickness: As indicated on Drawings.
5. Face: As indicated on Drawings.
6. Tile Color, Glaze, and Pattern: As indicated on Drawings.
7. Grout Color: As indicated on Drawings.
8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:

    a. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above it, same size as adjoining flat tile.

2.4 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.

2.5 TILE BACKING PANELS

A. Cementitious Backer Units: ANSI A118.9 or ASTM C1325, Type A, in maximum lengths available to minimize end-to-end butt joints.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. FinPan, Inc.
    b. Georgia-Pacific Gypsum LLC.
    c. USG Corporation.

2. Thickness: 1/2 inch.

2.6 WATERPROOF MEMBRANE

A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Bostik, Inc.

b. LATICRETE SUPERCAP, LLC.
c. MAPEI Corporation.

2.7 CRACK ISOLATION MEMBRANE

A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.12 for high performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

B. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bostik, Inc.
b. LATICRETE SUPERCAP, LLC.
c. MAPEI Corporation.

2.8 SETTING MATERIALS

A. Modified Dry-Set Mortar (Thinset): ANSI A118.4.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bostik, Inc.
b. LATICRETE SUPERCAP, LLC.
c. MAPEI Corporation.

2. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.9 GROUT MATERIALS

A. Standard Cement Grout: ANSI A118.6.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bostik, Inc.
b. LATICRETE SUPERCAP, LLC.
c. MAPEI Corporation.

2.10 MISCELLANEOUS MATERIALS

A. Metal Edge Strips: Angle or L-shaped, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; exposed-edge material.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Schluter Systems L.P.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

C. Floor Sealer: Manufacturer's standard product for sealing grout joints and that does not change color or appearance of grout.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bonsal American, an Oldcastle company.
b. Custom Building Products.
c. Insert manufacturer's name.

2.11 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.

    a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
    b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

B. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.

C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION OF CERAMIC TILE

A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:

    a. Tile floors in wet areas.

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.

E. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.

F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

1. Floor Tile: 1/8 inch, unless otherwise noted.
2. Wall Tile CT-2: Hairline.
3. Wall Tile CT-3 and CT-4: 1/8 inch.

H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.

1. Do not extend waterproof membrane or crack isolation membrane under thresholds set in modified dry-set mortar. Fill joints between such thresholds and adjoining tile set on waterproof membrane or crack isolation membrane with elastomeric sealant.

K. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with or below top of tile and no threshold is indicated.

L. Floor Sealer: Apply floor sealer to cementitious grout joints in tile floors according to floor-sealer manufacturer's written instructions. As soon as floor sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 INSTALLATION OF TILE BACKING PANEL

A. Install panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use modified dry-set mortar for bonding material unless otherwise directed in manufacturer's written instructions.

3.5 INSTALLATION OF WATERPROOF MEMBRANE

A. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

B. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

3.6 INSTALLATION OF CRACK ISOLATION MEMBRANE

A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

B. Allow crack isolation membrane to cure before installing tile or setting materials over it.

3.7 ADJUSTING AND CLEANING

A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.

B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.

2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.8 PROTECTION

A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

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 metal lay-in panels and exposed suspension systems for interior ceilings.

B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, 6 inches in size.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension-system members.
2. Structural members to which suspension systems will be attached.
3. Method of attaching hangers to building structure.

    a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.

4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
5. Size and location of initial access modules for acoustical panels.
6. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
7. Minimum Drawing Scale: 1/8 inch = 1 foot .

B. Qualification Data: For testing agency.

C. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.
2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.
3. Hold-Down Clips: Equal to 2 percent of quantity installed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A according to ASTM E 1264.
2. Smoke-Developed Index: 50 or less.

2.3 METAL PANELS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
1. Armstrong World Industries, Inc (Basis-of-Design); Techzone w/ Metalworks Field panels.
2. CertainTeed Corporation.
3. United States Gypsum Company.

B. Material: Aluminum.

1. Material: Aluminum.
2. Finish: Painted, Gun Metal (MYA)
3. Perforation type: M4, Rv 4058 Round/Staggered.
4. Panel size: 24” x 42”.

C. Color: Gun Metal (MYA).

D. Perforation type: M4, Rv 4058 Round/Staggered.
1. Open Area: 58 per cent.

E. Modular Size: 24 by 42 inches .

2.4 METAL SUSPENSION SYSTEM

A. Metal Suspension-System Standard: Provide manufacturer's direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.

B. Steel Suspension System: Armstrong ‘9/16” Silhouette XL’ with main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 9/16-inch-wide metal caps on flanges.

1. Structural Classification: Intermediate-duty system.
2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
3. Face Design: Square tegular ¼-inch reveal.
4. Cap Material: Cold-rolled steel or aluminum.
5. Cap Finish: Painted Gun Metal (MYA).

2.5 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

B. Wire Hangers, Braces, and Ties: Provide wires as follows:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304, nonmagnetic.
3. Nickel-Copper-Alloy Wire: ASTM B 164, nickel-copper-alloy UNS No. N04400.
4. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch- diameter wire.

C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

D. Hold-Down Clips: Manufacturer's standard hold-down.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.

B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

A. Install acoustical panel ceilings according to ASTM C 636/C 636M and manufacturer's written instructions.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
7. Do not attach hangers to steel deck tabs.
8. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
9. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install metal panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.

1. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
2. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
3. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.

a. Hold-Down Clips: Space 24 inches o.c. on all cross runners.

3.4 ERECTION TOLERANCES

A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.

B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096813 - TILE CARPETING

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:

1. Modular carpet tile.
2. Carpet base.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
2. Include manufacturer's written installation recommendations for each type of substrate.

B. Shop Drawings: For carpet tile installation, plans showing the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type, color, and dye lot.
3. Type of subfloor.
4. Type of installation.
5. Pattern of installation.
6. Pattern type, location, and direction.
7. Pile direction.
8. Type, color, and location of insets and borders.
9. Type, color, and location of edge, transition, and other accessory strips.
10. Transition details to other flooring materials.

C. Samples for Verification: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet Tile: Full-size Sample.

2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- long Samples.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.

C. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd..

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with the Carpet and Rug Institute's CRI 104.

1.8 FIELD CONDITIONS

A. Comply with the Carpet and Rug Institute's CRI 104 for temperature, humidity, and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.

C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.9 WARRANTY

A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, the following:

a. More than 10 percent edge raveling, snags, and runs.
b. Dimensional instability.
c. Excess static discharge.
d. Loss of tuft-bind strength.
e. Loss of face fiber.
f. Delamination.

3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on the Drawings, or approved equal by one of the following:
1. Interface, LLC
2. Bentley Mills
3. Shaw Contract Group; a Berkshire Hathaway company.
4. Tarkett USA.

B. Color: As indicated on drawing.

C. Pattern: As indicated on drawing.

D. Fiber Content: 100 percent nylon.

E. Pile Characteristic: Engaged tufted sheared.

F. Density: 8,438 oz./cu. yd..

G. Pile Thickness: 0.13 inches for finished carpet tile.

H. Stitches: 10.0 stitches per inch.

I. Gage: 1/10 inch.

J. Tufted Yarn Weight: 30 oz./sq. yd..

K. Primary Backing/Backcoating: CushionBac Renew.

L. Size: 19.69 by 19.69 inches.

M. Applied Treatments:

1. Soil-Resistance Treatment: Manufacturer's standard treatment.
2. Antimicrobial Treatment: Manufacturer's standard treatment that protects carpet tiles as follows:

    a. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.

N. Performance Characteristics:

1. Appearance Retention Rating: Heavy traffic, 3.0 minimum according to ASTM D7330.
2. Critical Radiant Flux Classification: Not less than 0.22 W/sq. cm according to NFPA 253.
3. Colorfastness to Light: Not less than 4 after 60 AFU (AATCC fading units) according to AATCC 16, Option E.
4. Electrostatic Propensity: Less than 3.0 kV according to AATCC 134.

2.2 CARPET BASE

A. Basis-of-Design Product: Subject to compliance with requirements, provide product matching carpet tile.

B. Color: As indicated on drawing.

C. Pattern: As indicated on drawing.

D. Binding: As indicated on drawing.

2.3 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

C. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.

B. Examine carpet tile for type, color, pattern, and potential defects.

C. Concrete Slabs: Verify that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.

1. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
    b. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with the Carpet and Rug Institute's CRI 104 and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.

C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 10, "Carpet Tile," and with carpet tile manufacturer's written installation instructions.

B. Installation Method: As recommended in writing by carpet tile manufacturer.

C. Maintain dye-lot integrity. Do not mix dye lots in same area.

D. Maintain pile-direction patterns indicated on Drawings.

E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.

H. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet tile:

1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
2. Remove yarns that protrude from carpet tile surface.
3. Vacuum carpet tile using commercial machine with face-beater element.

B. Protect installed carpet tile to comply with the Carpet and Rug Institute's CRI 104, Section 13.7.

C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 099123 - INTERIOR PAINTING

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 surface preparation and the application of paint systems on the following interior substrates:
   1. Steel and iron.
   2. Gypsum board.
   3. Textured wall covering.

1.3 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1. Indicate VOC content.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

D. Submit Samples on rigid backing, 8 inches square.
1. Apply coats on Samples in steps to show each coat required for system.
2. Label each coat of each Sample.
3. Label each Sample for location and application area.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 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.

B. Maintain containers in clean condition, free of foreign materials and residue.
1. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

C. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   1. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

D. Low-Emitting Materials: For field applications that are inside the weatherproofing system, 90 percent of paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

E. Colors: As indicated in a color schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
   1. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

F. Application of coating indicates acceptance of surfaces 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.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

C. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

D. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

E. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

F. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

G. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
1. SSPC-SP 3.
2. SSPC-SP 7/NACE No. 4.
3. SSPC-SP 11.

H. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Use applicators and techniques suited for paint and substrate indicated.
1. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint new surfaces behind permanently fixed equipment or furniture with prime coat only. Do not paint existing surfaces behind fixed equipment or furniture.
2. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
3. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
4. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

C. 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.

D. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

E. 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.

F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

G. Paint the following work where exposed in occupied spaces:
1. Uninsulated metal piping.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.
4. Metal conduit.
5. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
6. Other items as directed by Architect.

H. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

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.

3.5 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:
1. Latex System, Alkyd Primer:
   a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76 (Omit if shop primed).

1) Sherwin Williams Company; Kem Kromik Universal Metal Primer B50Z (Metal)
2) Benjamin Moore; Alkyd Metal Primer M06
3) PPG; Speedhide Rust-Inhibitive Primer 6-208, 6-212 Series.

b. Intermediate Coat: Latex, interior, matching topcoat.

c. Topcoat: Latex, interior, semi-gloss (MPI Gloss Level 5), MPI #54.
1) Sherwin Williams Company; Pro Classic Waterborne Acrylic Semi-Gloss B31.
2) Benjamin Moore; Moorcraft 100% Acrylic Semi-Gloss Enamel 281.
3) PPG; Manor Hall Acrylic 87-Line..

B. Gypsum Board (Ceiling and Soffits) Substrates:
1. Latex over Latex Sealer System MPI INT 9.2A:
a. Prime Coat: Primer sealer, latex, interior, MPI #50.
1) Sherwin-Willams Company; ProMar 200 Zero VOC Int. Latex Primer B28W02600.
2) Benjamin Moore; Pristine Eco Spec Interior Latex Primer Sealer N372.
3) Speedhide Interior Quick-Drying Latex Sealer, 6-2.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, eggshell (MPI Gloss Level 1), MPI #53.
1) Sherwin-Williams Company; ProMar 400 Zero VOC Interior Latex Flat; B30-4600 Series.
2) Benjamin Moore; Waterborne Ceiling Paint 508.
3) PPG; Speedhide Interior Latex Ultra-Flat 6-0011 Series.

C. Gypsum Board (Walls) and Textured Wall Surfacing Substrates:
1. Latex over Latex Sealer System MPI INT 9.2A:
a. Prime Coat: Primer sealer, latex, interior, MPI #50.
1) Sherwin-Willams Company; ProMar 200 Zero VOC Int. Latex Primer B28W02600.
2) Benjamin Moore; Ultra Spec 500 Interior Latex Primer N534.
3) Speedhide Interior Quick-Drying Latex Sealer, 6-2.
b. Intermediate Coat: Epoxy, interior, matching topcoat.
c. Topcoat: Epoxy, interior, eggshell (MPI Gloss Level 3), MPI #53.
1) Sherwin-Williams Company; Pro Industrial Pre-Catalyzed Waterbased Epoxy, Eg-Shel K45 Series.
2) Benjamin Moore; Corotech Pre-Catalyzed Waterborne Epoxy Eggshell V342.
3) PPG; Pitt-Glaze WB1, 16-1310 Series.

END OF SECTION 099123

SECTION 099305 - MAINTENANCE AND REFINISHING OF WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and application of wood stains and transparent finishes for refinishing existing woodwork.

1. Interior Substrates:

a. Shop refinishing of existing wood doors.

B. This procedure includes guidance on removing build-up on wood doors and refinishing. This includes removing and storing all hardware from doors and reinstalling after the doors have been refinished.

1.2 QUALITY ASSURANCE

A. The intent of refinishing is to restore the color, finish and overall surface uniformity of the doors, consistent with the original design intent. A like new appearance is not anticipated.

B. Splotches, streaks, runs or other inconsistencies caused by improper application of finishing products will not be accepted.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of finish system in color and gloss of finish required.

1.4 PROJECT/SITE CONDITIONS

A. Determine that surfaces to which finishes are to be applied are even, smooth, sound, clean, dry and free from defects affecting proper application.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Benjamin Moore & Co.
2. PPG Architectural Finishes, Inc.
3. Sherwin-Williams Company (The).

2.2 MATERIALS, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Primers, Sealers, and Undercoaters: 100 g/L.
2. Clear Wood Finishes, Varnishes: 275 g/L.
3. Stains: 100 g/L.

D. Stain Colors: As indicated on Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Repair and fill damaged areas as required before applying new finish.

D. Proceed with finish application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

1. After completing finishing operations, use workers skilled in the trades involved to reinstall items that were removed.

3.3 APPLICATION

A. Apply finishes according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."

B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each substrate condition and as specified.

1. Remove dust, dirt, oil, and grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove loose wood fibers by brushing.

D. Surface Preparation:

1. Remove all non-original door louvers, panels and transom panels taking care not to damage the remainder of the door, frame or paneling.
2. Replace the non-original elements with new wood which matches the species of the original wood and which matches the detailing of the original millwork.
3. Hardware: Remove existing hardware, door numbers, and other applied elements, and store for reinstallation.
4. Make minor repairs to doors as required:

E. Fill holes exceeding 1 inch in diameter with matching Dutchmen. Fill smaller holes with patching compound tinted to match wood. Remove shallow scratches:

1. Lightly sand, in the direction of the grain only, to remove shallow scratches.
2. Remove scratches using 80 grit sandpaper.

3. Finish using 120 grit sandpaper until smooth surface is attained.
4. Smooth surface sufficiently to ensure uniform stain absorption.
5. Wipe surface with a tack rag to remove traces of sand, and dust prior to applying new finishes.

F. Apply the stain:

1. Color mix stain to match finish as indicated on Drawings.
2. Apply stain to wood surfaces using a soft cloth or bristle brush.
3. Allow stain to set as required for proper color match and maximum surface uniformity.
4. Wipe off excess stain by rubbing parallel to the grain with a soft dry cloth.
5. Allow surface to dry for at least 24 hours.

G. Apply the finish coating:

1. Make sure that surface is clean, level and free of defects.
2. Apply 3 coats of varnish using a brush or sprayer to produce a uniform sheen and appearance. Allow each coat to dry for at least 4 hours.
3. Lightly sand with #400 grit silicon carbide paper or rub with fine steel wool between coats.
4. Vacuum surface and wipe with a dry tack rag to remove all grit and dust prior to applying next finish coat.
5. After curing, lightly rub surface with fine steel wool to replicate original finish.

3.4 CLEANING AND PROTECTION

A. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.5 INTERIOR WOOD -FINISH-SYSTEM SCHEDULE

A. Wood Substrates: doors.

1. Polyurethane Varnish over Stain System MPI INT 6.3E:

a. Stain Coat: Stain, semitransparent, for interior wood, MPI #90.
b. First Intermediate Coat: Polyurethane varnish matching topcoat.
c. Second Intermediate Coat: Polyurethane varnish matching topcoat.
d. Topcoat: Varnish, interior, polyurethane, oil modified, satin (MPI Gloss Level 4), MPI #57.

END OF SECTION 099300

SECTION 102600 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Corner guards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, 12 inches long.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.4 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of wall- and door-protection units that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 450 or less.

2.2 CORNER GUARDS

A. Surface-Mounted, Plastic-Cover Corner Guards (CG): Manufacturer's standard, PVC-free assembly consisting of snap-on, resilient plastic cover installed over retainer; including mounting hardware; fabricated with 90- or 135-degree turn to match wall condition.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Construction Specialties, Inc.
b. JL Industries, Inc.; a division of the Activar Construction Products Group.
c. Pawling Corporation.

2. Cover: Extruded rigid plastic, minimum 0.078-inch wall thickness; in dimensions and profiles indicated on Drawings.

a. Color and Texture: As indicated by manufacturer's designations.

3. Continuous Retainer: One-piece extruded plastic.
4. Retainer Clips: Manufacturer's standard impact-absorbing clips.
5. Top and Bottom Caps: Prefabricated, injection-molded plastic; color matching cover; field adjustable for close alignment with snap-on cover.

2.3 MATERIALS

A. Plastic Materials: Chemical- and stain-resistant, high-impact-resistant plastic with integral color throughout; extruded and sheet material as required, thickness as indicated.

B. Polycarbonate Plastic Sheet: ASTM D 6098, S-PC01, Class 1 or Class 2, abrasion resistant; with a minimum impact-resistance rating of 15 ft.-lbf/in. of notch when tested according to ASTM D 256, Test Method A.

C. Fasteners: Aluminum, nonmagnetic stainless-steel, or other noncorrosive metal screws, bolts, and other fasteners compatible with items being fastened. Use security-type fasteners where exposed to view.

D. Adhesive: As recommended by protection product manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation Quality: Install wall and door protection according to manufacturer's written instructions, level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.

B. Mounting Heights: Install wall and door protection in locations and at mounting heights indicated on Drawings.

C. Accessories: Provide splices, mounting hardware, anchors, trim, joint moldings, and other accessories required for a complete installation.

1. Provide anchoring devices and suitable locations to withstand imposed loads.
2. Where splices occur in horizontal runs of more than 20 feet, splice aluminum retainers and plastic covers at different locations along the run, but no closer than 12 inches apart.
3. Adjust end and top caps as required to ensure tight seams.

END OF SECTION

SECTION 104413 - FIRE PROTECTION CABINETS

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:
   1. Fire-protection cabinets for the following:

      Portable fire extinguisher.

B. Related Requirements:
   1. Section 104416 "Fire Extinguishers" for portable, hand-carried fire extinguishers accommodated by fire-protection cabinets

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semirecessed-, or surface-mounting method and relationships of box and trim to surrounding construction.

B. Shop Drawings: For fire-protection cabinets.
   1. Include plans, elevations, sections, details, and attachments to other work.

C. Samples for Verification: For each type of exposed finish required, prepared on samples 6 by 6 inches square.

1.4 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain fire-protection cabinets, accessories, and fire extinguishers from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E814 for fire-resistance rating of walls where they are installed.

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.

2.3 FIRE-PROTECTION CABINET

A. Cabinet Type: Suitable for fire extinguisher and hose valve.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Babcock-Davis.
      b. JL Industries, Inc.; a division of the Activar Construction Products Group.
      c. Potter Roemer LLC.
   2. Cabinet Construction: Nonrated.
   3. Cabinet Material: Stainless steel sheet.
      a. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304
      b. Shelf: Same metal and finish as cabinet.

B. Semi-recessed Cabinet: One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backbend).
   1. Rolled-Edge Trim: 2-1/2-inch backbend depth.

C. Cabinet Trim Material: Stainless steel sheet.
      a. Finish: ASTM A480/A480M No. 4 directional satin finish.

D. Door Material: Stainless steel sheet.
      a. Finish: ASTM A480/A480M No. 4 directional satin finish

E. Door Style: Vertical duo panel with frame.

F. Door Glazing: Tempered float glass (clear).

G. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
   1. Provide manufacturer's standard.

H. Accessories:
1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
2. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
3. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated.
   a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
   b. Location: Applied to cabinet door.
      1) Application Process: Engraved .
      2) Lettering Color: Black.
      3) Orientation: Vertical.

2.4 FABRICATION

A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
1. Weld joints and grind smooth.
2. Miter corners and grind smooth.
3. Provide factory-drilled mounting holes.
4. Prepare doors and frames to receive locks.
5. Install door locks at factory.

B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
2. Fabricate door frames of one-piece construction with edges flanged.
3. Miter and weld perimeter door frames and grind smooth.

C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.5 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.

C. Finish fire-protection cabinets after assembly.

D. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls and partitions for suitable framing depth and blocking where semi-recessed cabinets will be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for semi-recessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if not indicated, at height indicated below:
   1. Fire-Protection Cabinets: 42 inches above finished floor to top of fire extinguisher.

B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
   1. Unless otherwise indicated, provide semi-recessed fire-protection cabinets.
   2. Provide inside latch and lock for break-glass panels.
   3. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.

3.4 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written instructions.

B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.

E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413

SECTION 104416 - FIRE EXTINGUISHERS

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 portable, hand-carried fire extinguishers.

B. Related Requirements:
   1. Section 104413 "Fire Protection Cabinets."

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.

1.4 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Babcock-Davis.
   b. JL Industries, Inc.; a division of the Activar Construction Products Group.
   c. Kidde Residential and Commercial Division.
   d. Potter Roemer LLC.
2. Source Limitations: Obtain fire extinguishers, fire-protection cabinets, and accessories, from single source from single manufacturer.
3. Valves: Nickel-plated, polished-brass body.
4. Handles and Levers: Stainless steel.
5. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

B. Wet-Chemical Type : UL-rated 2-A:1-B:C:K, 1.6-gal. nominal capacity, with potassium -based chemical in stainless-steel container; with pressure-indicating gage.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.
   1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416

SECTION 210517 - SLEEVES AND SLEEVE SEALS FOR FIRE SUPPRESSION PIPING

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:

1. Sleeves.
2. Sleeve-seal systems.
3. Grout.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated in this section and for the final O & M Manuals.

B. Warranty Data: Manufacturer's warranty data for the and for the final O & M Manuals.

C. Maintenance Data: Manufacturer's operation and maintenance data for the final O & M Manuals.

D. Fire protection installations shall comply with the 2020 Fire Code and Building Codes of New York State based on the 2018 IPC including New York State Amendments.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

2.2 SLEEVE-SEAL SYSTEMS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.
2. CALPICO, Inc.
3. Metraflex Company (The).
4. Pipeline Seal and Insulator, Inc.
5. Proco Products, Inc.

B. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.

1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Pre-sealed Systems.

B. Description: Manufactured plastic, sleeve-type, waterstop assembly made for imbedding in concrete slab or wall. Unit has plastic or rubber waterstop collar with center opening to match piping OD.

2.4 GROUT

A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Non-shrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION

A. Provide sleeves for piping passing through penetrations in floor decks, partitions and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.

1. Sleeves are not required for core-drilled holes.

C. Provide sleeves in concrete floors and concrete walls as new slabs and walls are constructed.

1. Permanent sleeves are not required for holes in slabs formed by molded-PE or -PP sleeves.
2. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.

3. Provide grout and seal the space outside of sleeves in slabs and walls without sleeve-seal system.

D. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 07 8413 "Penetration Firestopping." Provide firestopping at rated walls and floor decks sealing pipe and sleeve penetrations in compliance with fire stopping manufacturers written installation instructions. Refer to Architectural plans for the ratings of walls and floor decks.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Provide mechanical sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at service piping entries into building.

B. Select type, size and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Provide sleeve-seal fittings for piping in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Provide grout and seal the space around outside of sleeve-seal fittings.

END OF SECTION 21 0517

SECTION 210518 - ESCUTCHEONS FOR FIRE SUPPRESSION PIPING

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:

1. Escutcheons.
2. Floor plates.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Product Data: For each type of product indicated in this section and for the final O & M Manuals.

C. Warranty data: Manufacturer's warranty data for the and for the final O & M Manuals.

D. Maintenance data: Manufacturer's operation and maintenance data for the final O & M Manuals.

E. Fire protection installations shall comply with the 2020 Fire Code and Building Codes of New York State based on the 2018 IPC including New York State Amendments.

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated finish and setscrew fastener.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.

C. Split-Casting Brass Type: With polished, chrome-plated finish and with concealed hinge and setscrew.

2.2 FLOOR PLATES

A. One-Piece Floor Plates: Cast-iron flange.

B. Split-Casting Floor Plates: Cast brass with concealed hinge.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide escutcheons for piping penetrations of walls, ceilings and finished floors.

B. Provide escutcheons with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

1. Escutcheons for New Piping:

a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
b. Chrome-Plated Piping: One-piece, cast-brass type with polished, chrome-plated finish.
c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished, chrome-plated finish.
d. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.
e. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass type with polished, chrome-plated finish.
f. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, stamped-steel type.
g. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with polished, chrome-plated finish.
h. Bare Piping in Unfinished Service Spaces: One-piece, stamped-steel type.
i. Bare Piping in Equipment Rooms: One-piece, cast-brass type with polished, chrome-plated finish.

C. Provide floor plates for piping penetrations of equipment-room floors.

D. Provide floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

1. New Piping: One-piece, floor-plate type.

E. Provide escutcheons after the completion of and inspection of firestopping materials at penetrations through walls and floor decks.

3.2 FIELD QUALITY CONTROL

A. Replace broken and damaged escutcheons and floor plates using new materials.

END OF SECTION 210518

SECTION 210529 - HANGERS AND SUPPORTS FOR FIRE SUPRESSION PIPING AND EQUIPMENT

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:

1. Metal pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal hanger-shield inserts.
5. Fastener systems.
6. Equipment supports.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated in this section and for the final O & M Manuals.

B. Warranty Data: Manufacturer’s warranty data for the and for the final O & M Manuals.

C. Maintenance Data: Manufacturer’s operation and maintenance data for the final O & M Manuals.

D. Shop Drawings: Signed and sealed by a qualified professional engineer**.** Show fabrication and installation details and include calculations for the following:

1. Trapeze pipe hangers.
2. Metal framing systems.
3. Equipment supports.

E. Delegated-Design Submittal: For trapeze hangers indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of trapeze hangers.
2. Include design calculations for designing trapeze hangers.

F. Welding certificates for certified welders.

1.4 QUALITY ASSURANCE

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

B. Pipe Welding Qualifications: Qualify procedures and operators according to 2015 ASME Boiler and Pressure Vessel Code, Section IX.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design trapeze pipe hangers and equipment supports.

B. Structural Performance: Hangers and supports for fire-suppression piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

1. Design of supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
2. Design of equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. NFPA Compliance: Comply with NFPA 13.

2.2 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Atkore International (Unistrut).
b. Anvil.
c. Carpenter and Patterson, Inc.
d. Eaton (B-line).
e. Erico.
f. Flex-Strut Inc.
g. G-Strut.
h. Globe Pipe Hanger Products, Inc.
i. Haydon Corporation.
j. MAPA.
k. National Pipe Hanger.
l. PHD Manufacturing, Inc.
m. Radonaway.
n. Rilco.
o. Tolco.
p. Wesanco, Inc.

2. Description: Factory-fabricated components, NFPA approved, UL listed, or FM approved for fire-suppression piping support.
3. Galvanized Metallic Coatings: Pre-galvanized or hot-dip galvanized.
4. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel stainless steel.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-58, Type 59, shop- or field-fabricated pipe-support assembly, made from structural-carbon-steel shapes, with NFPA-approved, UL-listed, or FM-approved carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.4 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: NFPA-approved, UL-listed, or FM-approved threaded-steel stud, for use in hardened Portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Hilti, Inc.
    b. ITW Ramset/Red Head; Illinois Tool Works, Inc.
    c. MKT Fastening, LLC.
    d. Simpson Strong-Tie Co., Inc.

B. Mechanical-Expansion Anchors: NFPA-approved, UL-listed, or FM-approved, insert-wedge-type anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton (B-line).
    b. Empire Tool and Manufacturing Co., Inc.
    c. Hilti, Inc.
    d. ITW Ramset/Red Head; Illinois Tool Works, Inc.
    e. MKT Fastening, LLC.

2. Indoor Applications: Zinc-coated or Stainless steel.
3. Outdoor Applications: Stainless steel.

2.5 EQUIPMENT SUPPORTS

A. Description: NFPA-approved, UL-listed, or FM-approved, welded, shop- or field-fabricated equipment support, made from structural-carbon-steel shapes.

2.6 MATERIALS

A. Carbon Steel: ASTM A1011/A1011M.

B. Structural Steel: ASTM A36/A36M, carbon-steel plates, shapes, and bars; black and galvanized.

C. Stainless Steel: ASTM A240/A240M.

D. Grout: ASTM C1107/C1107M, factory-mixed and -packaged, dry, hydraulic-cement, non-shrink and nonmetallic grout, suitable for interior and exterior applications.

1. Properties: Non-staining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with requirements in Section 078400 "Firestopping" for firestopping materials and installation, for penetrations through fire-rated walls, ceilings and assemblies.

B. 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 lbs.

C. Provide for and refer to support manufacturer’s written tables for pipe diameters, type of pipe, schedule thickness and weights a when filled with water for the proper selection of hangers, rods, hardware and support bracing accessories to match pipe installation and system application.

3.2 HANGER AND SUPPORT INSTALLATION

A. Metal Pipe-Hanger Installation: Comply with installation requirements of approvals and listings. Provide hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-58. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size, or install intermediate supports for smaller-diameter pipes as specified for individual pipe hangers.
2. Field fabricate from ASTM A36/A36M carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

C. Fastener System Installation:

1. Provide powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete, after concrete is placed and completely cured. Provide operators that are trained or licensed by powder-actuated tool manufacturer. Provide fasteners according to powder-actuated tool manufacturer's operating manual. Install in accordance with approvals and listings.
2. Provide mechanical-expansion anchors in concrete, after concrete is placed and completely cured. Provide fasteners according to manufacturer's written instructions. Install in accordance with approvals and listings.

D. Provide hangers and supports complete with all necessary attachments, inserts, bolts, rods, nuts, washers and other accessories.

E. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

F. Provide hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

G. Provide lateral bracing with pipe hangers and supports to prevent swaying.

H. Provide building attachments within concrete slabs or attach to structural steel. Provide additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 inches and larger and at changes in direction of piping. Provide concrete inserts before concrete is placed; fasten inserts to forms, and install reinforcing bars through openings at top of inserts.

I. Load Distribution: Provide hangers and supports, so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

J. Pipe Slopes: Provide hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

3.3 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment, and make bearing surface smooth.

C. Provide lateral bracing, to prevent swaying motion for equipment supports.

3.4 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Provide materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections, so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 3/4 inches or less.

3.6 PAINTING

A. Touchup: Clean field welds and abraded, shop-painted areas. Paint exposed areas immediately after erecting hangers and supports. Provide the same materials as those 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 a minimum dry film thickness of 2.0 mils.

B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded, shop-painted areas on miscellaneous metal are specified in Section 099113 "Exterior Painting." Section 099123 "Interior Painting."

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780/A780M.

3.7 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with NFPA requirements for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Provide hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finishes.

D. Provide nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Provide carbon-steel pipe hangers and supports, metal trapeze pipe hangers and metal framing systems and attachments for general service applications.

F. Provide stainless-steel pipe hangers and stainless-steel or corrosion-resistant attachments for hostile environment applications in the repair garage.

G. Horizontal-Piping Hangers and Supports: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated, stationary pipes NPS 1/2 inch to NPS 8 inches.
2. Steel Pipe Clamps (MSS Type 4): For suspension of NPS 1/2 inch to NPS 8 inches if little or no insulation is required.
3. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of non-insulated, stationary pipes NPS 1/2 inch to NPS 8 inches.
4. Split Pipe Ring with or without Turnbuckle Hangers (MSS Type 11): For suspension of non-insulated, stationary pipes NPS 3/8 inch to NPS 8 inches.
5. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of non-insulated, stationary pipes NPS 3/8 inch to NPS 3 inches.
6. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 inch to NPS 8 inches.
7. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 inches to NPS 8 inches, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.
8. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 inches to NPS 8 inches, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
9. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 inches to NPS 8 inches if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.

H. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, provide the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 inch to NPS 8 inches.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 inch to NPS 8 inches if longer ends are required for riser clamps.

I. Hanger-Rod Attachments: Comply with NFPA requirements.

J. Building Attachments: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, provide the following types:

1. Steel or Malleable-Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. C-Clamps (MSS Type 23): For structural shapes.
3. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.

K. Saddles and Shields: Comply with NFPA requirements. Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal Hanger-Shield Inserts: For supporting insulated pipe.

L. Comply with NFPA requirements for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

M. Comply with MFMA-103 for metal framing system selections and applications that are not specified in piping system Sections.

N. Provide powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

END OF SECTION 21 0529

SECTION 210553 – IDENTIFICATION FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT

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:

1. Equipment labels.
2. Warning signs and labels.
3. Pipe labels.
4. Stencils.
5. Valve tags.

1.3 SUBMITTALS

A. Samples: For color, letter style, and graphic representation required for each identification material and device.

B. Equipment-Label Schedule: Include a listing of all equipment to be labeled and the proposed content for each label.

C. Valve Schedules: Valve numbering, location, size and type of service.

D. Product Data: For each type of product indicated in this section and for the final O & M Manuals.

E. Warranty data: Manufacturer’s warranty data for the and for the final O & M Manuals.

F. Maintenance data: Manufacturer’s operation and maintenance data for the final O & M Manuals.

G. Fire protection installations shall comply with the 2020 Fire Code and Building Codes of New York State based on the 2018 IPC including New York State Amendments.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032-inch-thick, with predrilled holes for attachment hardware.
2. Letter Color: Red.
3. Background Color: White.

4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
5. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
6. Fasteners: Stainless-steel rivets or self-tapping screws.
7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Label Content: Include equipment's Drawing designation or unique equipment number, drawing numbers where equipment is indicated (plans, details, and schedules), and the Specification Section number and title where equipment is specified.

C. Equipment-Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules) and the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 WARNING SIGNS AND LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16-inch-thick, with predrilled holes for attachment hardware.

B. Letter Color: Red.

C. Background Color: White.

D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

G. Fasteners: Stainless-steel rivets or self-tapping screws.

H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

I. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

C. Pipe-Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings; pipe size; and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping-system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
2. Lettering Size: At least 1-1/2 inches high.

D. Pipe-Label Colors:

1. Background Color: Red.
2. Letter Color: White.

2.4 STENCILS

A. Stencils: Prepared with letter sizes according to ASME A13.1 for piping; and minimum letter height of 3/4 inch for access panel and door labels, equipment labels, and similar operational instructions.

1. Stencil Material: Fiberboard or metal.
2. Stencil Paint: Exterior, gloss, alkyd enamel black unless otherwise indicated. Paint may be in pressurized spray-can form.
3. Identification Paint: Exterior, alkyd enamel in colors according to ASME A13.1 unless otherwise indicated.

2.5 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping-system abbreviation and 1/2-inch numbers.

1. Tag Material: Brass, 0.032-inch-thick, with predrilled holes for attachment hardware.
2. Fasteners: Brass wire-link chain.
3. Valve-Tag Color: Red.
4. Letter Color: White.

B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.

1. Valve-tag schedule shall be included in operation and maintenance data.

2.6 WARNING TAGS

A. Warning Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.

1. Size: 3 by 5-1/4 inches minimum.
2. Fasteners: Brass grommet and wire.
3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."
4. Color: Yellow background with black lettering.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease and incompatible primers, paints and encapsulants.

3.2 LABEL INSTALLATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Provide or permanently fasten labels on each major item of mechanical equipment with rivets or stainless-steel coated wire ties.

D. Locate equipment labels where accessible and visible from a standing position on the floor.

E. Pipe-Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as plenums and exterior exposed locations as follows:

1. Near each fire protection control valve and control device.
2. Near each branch connection excluding short takeoffs. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings and inaccessible enclosures.
4. Near access doors and similar access points that permit view of concealed piping.
5. Near major fire protection equipment items.
6. Spaced at maximum intervals of 30 feet along each run. 15 feet on short runs.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

F. NFPA compliant signage shall be provided at the system riser to include, system type, system discharge density, gallons per minute, hose allowance and dates of system installation.

G. NFPA compliant signage shell be provided at the fire department and backflow prevention test inspection inlets and outlets. Signage shall be 18 by 18 inches, reflective and visible from the street. “Fire Dept. Hose Conn.” “Backflow Prevention Test Station”.

H. NFPA compliant signage shall be provide at all system drains and test locations on exterior walls. “System Test”, “System Drain”.

I. Provide and locate all signage 48 inches above finish grade and anchored securely to the building wall.

J. Provide equipment nameplates and labels at fire pumps, jockey pumps, primary and jockey pump control panels, disconnects and motor starters. Nameplates shall be anchored to walls, equipment or structure and visible from a standing position on the floor. Lettering size shall be a minimum of 1 inch high.

3.3 VALVE-TAG INSTALLATION

A. Provide tags on fire protection control valves and control devices in piping systems. List tagged valves in a valve-tag schedule.

B. Valve-Tag Application Schedule: Tag valves according to size, shape, and with captions similar to those indicated in "Valve-Tag Size and Shape" Subparagraph below:

1. Valve-Tag Size and Shape:

a. Wet-Pipe Sprinkler System: 1-1/2 inches square or round.

3.4 WARNING-TAG INSTALLATION

A. Provide required message on and attach warning tags to equipment and other items where required. Warning labels shall be located locations of electrical equipment supply power to fire protection pumps and controllers. Equipment shall be labeled “Electrical Hazard”.

END OF SECTION 210553

SECTION 211313 - WET-PIPE SPRINKLER SYSTEMS

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:

1. Pipes, fittings, and specialties.
2. Fire-department connections.
3. Sprinklers.
4. Alarm devices.
5. Pressure gauges.

1.3 DEFINITIONS

A. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 250 psig maximum.

1.4 SYSTEM DESCRIPTIONS

A. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 250-psig minimum working pressure.

1. Margin of Safety for Available Water Flow and Pressure: 20 percent, including losses through water-service piping, valves, and backflow preventers.
2. Sprinkler Occupancy Hazard Classifications:

    a. Building service areas: Ordinary hazard, Group 1.

3. Minimum Density for Automatic-Sprinkler Piping Design:

    a. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.
    b. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.
    c. Extra-Hazard, Group 1 Occupancy: 0.30 gpm over entire area.

4. Maximum Protection Area per Sprinkler:

    a. Storage Areas: 130 sq. ft.
    b. Mechanical Equipment Rooms: 130 sq. ft.
    c. Other Areas: In accordance to NFPA 13 recommendations unless otherwise indicated.

1.6 SUBMITTALS

A. Product Data Sheets: For all products indicated in this section. Include materials of construction, rated capacities, operating characteristics, electrical characteristics, furnished specialties and accessories.

B. Shop Drawings: For wet-pipe sprinkler systems. Provide plans, elevations, sections, details and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

C. Qualification Data: Provide written qualifications of contractor, previous projects and installation technicians.

D. Delegated Design: This contractor shall provide sprinkler piping drawings to include: Working plans prepared in accordance with NFPA 13 written requirements for approval by the authorities having jurisdiction and including hydraulic calculations. Calculations and shop drawings shall be prepared by a NICET Level III or higher water-based fire protection technologies design technician and under the direction of a Licensed Professional Engineer registered in New York State practicing fire protection engineering and shall be signed and sealed.

E. Welding certificates for certified welders.

F. A fire-hydrant flow test report shall be provided to the Engineer at the beginning of the project prior to commencement of shop drawing preparation.

G. Hydraulic calculations: This contractor shall submit hydraulic calculations developed on a Sprink-Cad, Hass or similar computer program demonstrating the system performance in compliance with the submitted piping layout.

H. Field Test Reports and Certificates: Indicate and interpret test results for compliance with performance requirements and as described in NFPA 13. Include "Contractor's Material and Test Certificate for Aboveground Piping." Provide written copies to the Engineer and for the final O & M Manuals.

I. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation and maintenance manuals. Include a copy of NFPA-13 for the Owner in the O & M Manuals.

J. Warranty Data: Manufacturer’s warranty data for the and for the final O & M Manuals.

K. Maintenance Data: Manufacturer’s operation and maintenance data for the final O & M Manuals.

L. Written system pressure test and flushing reports for the final O & M Manuals on NFPA compliant forms.

M. Fire protection installations shall comply with the 2020 Fire Code and Building Codes of New York State based on the 2018 IPC including New York State Amendments.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

1. The contractor's responsibilities shall include preparation of shop drawings, submittals, hydraulic calculations, designing, fabricating and installation of sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on results of fire-hydrant flow test.

    a. Engineering Responsibility: Preparation of working shop drawings, plans, calculations and field test reports reviewed by a qualified professional engineer.

B. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. 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.

D. NFPA Standards: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with the following:

1. NFPA 13, "Installation of Sprinkler Systems."
2. NFPA 13R, "Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height."
3. NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances."
4. 2020 Fire Code of New York State.
5. 2020 Building Code of New York State.

1.8 PROJECT COORDINATION

A. Shop/Coordination Drawings: Produced in electronic format (compatible with AutoCAD 2012) Detailed at 1/4" =1'-0" scale. Drawings shall indicate piping layout and elevation, and all equipment with manufacturers' recommended maintenance access. This contractor shall be responsible to coordinate the following items and shall be shown and coordinated with each trade, in discussion with the other trades involved:

1. Ductwork and piping location installations in all spaces, indicating coordination with general construction, building components and other building structural components. Indicate areas of conflict and proposed changes to duct and piping layout.
2. Piping fabrication, assembly, and installation, including plans, elevations, sections, components and attachments to structure.
3. Fabrication of pipe anchors, hangers and supports.
4. Detailed location of anchors, alignment guides and expansion joints.
5. Factory- and shop-fabricated ducts and fittings.
6. Duct layout and placement in relation to sprinkler piping and heads.
7. Piping layout indicating sizes, configuration, and service.
8. Elevation of top of ducts and pipes.
9. Dimensions of main duct runs from building column lines.
10. Suspended ceiling components.
11. Structural members to which piping will be attached.

12. Sizes and location of access doors in acoustical tile.
13. Penetrations of smoke barriers and fire-rated construction.
14. Any items penetrating finished ceiling to include the following:

    a. Lighting fixtures.
    b. Diffuser outlets and inlets.
    c. Speakers.
    d. Sprinkler heads.
    e. Access panels.
    f. Ceiling details and/or soffit elevations.

1.9 EXTRA MATERIALS

A. Provide extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

    1. Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of (6) six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include a separate cabinet with sprinklers and wrench for each type of sprinkler used in Project.

PART 2 - PRODUCTS

2.1 PERFORMANCE 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. Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with NFPA 13.

C. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

D. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design wet-pipe sprinkler systems.

    1. Available fire-hydrant flow test records indicate the following conditions:

        a. Date:
        b. Time:
        c. Performed by: Erie County water Authority.
        d. Location of Residual Fire Hydrant R:
        e. Location of Flow Fire Hydrant F: 70 psig
        f. Static Pressure at Residual Fire Hydrant R: 90 psig
        g. Measured Flow at Flow Fire Hydrant F:
        h. Residual Pressure at Residual Fire Hydrant R:

2. Sprinkler system design shall be approved by authorities having jurisdiction.

    a. Margin of Safety for Available Water Flow and Pressure: 20 percent, including losses through water-service piping, valves, and backflow preventers.
    b. Sprinkler Occupancy Hazard Classifications:

        1) Automobile Parking Areas: Ordinary Hazard, Group 1.
        2) Building Service Areas: Ordinary Hazard, Group 1.
        3) Electrical Equipment Rooms: Ordinary Hazard, Group 1.
        4) Elevator Machine Room: Ordinary Hazard, Group 1.
        5) General Storage Areas: Ordinary Hazard, Group 1.
        6) Machine Shops: Ordinary Hazard, Group 2.
        7) Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
        8) Office and Public Areas: Light Hazard.
        9) Repair Garages: Ordinary Hazard, Group 2.

3. Minimum Density for Automatic-Sprinkler Piping Design:

    a. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.
    b. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.
    c. Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm over 1500-sq. ft. area.
    d. Extra-Hazard, Group 1 Occupancy: 0.30 gpm over 2500-sq. ft. area.
    e. Extra-Hazard, Group 2 Occupancy: 0.40 gpm over 2500-sq. ft. area.

4. Minimum Density for Deluge-Sprinkler Piping Design:

    a. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm per square foot over entire area.
    b. Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm per square foot over entire area.
    c. Extra-Hazard, Group 1 Occupancy: 0.30 gpm per square foot over entire area.
    d. Extra-Hazard, Group 2 Occupancy: 0.40 gpm per square foot over entire area.

5. Maximum protection area per sprinkler according to UL listing.
6. Maximum Protection Area in Square Feet per Sprinkler:

    a. Office Spaces: 225 sq. ft.
    b. Storage Areas: 130 sq. ft.
    c. Mechanical Equipment Rooms: 130 sq. ft.
    d. Electrical Equipment Rooms: 130 sq. ft.
    e. Other Areas: According to NFPA 13 recommendations unless otherwise indicated.

2.2 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

2.3 STEEL PIPE AND FITTINGS

A. Standard Weight, Schedule 40, Black-Steel Pipe: ASTM A 53/A 53M, Type E, Grade B. Pipe ends may be factory or field formed to match joining method.

B. Schedule 10, Black-Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, Schedule 10 in NPS 5 and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10, plain end.

C. Black-Steel Pipe Nipples: ASTM A 733, made of ASTM A 53/A 53M, standard-weight, seamless steel pipe with threaded ends.

D. Uncoated, Gray-Iron Threaded Fittings: ASME B16.4, Class 250, standard pattern.

E. Malleable- or Ductile-Iron Unions: UL 860.

F. Cast-Iron Flanges: ASME 16.1, Class 250.

G. Steel Flanges and Flanged Fittings: ASME B16.5, Class 250.

H. Steel Welding Fittings: ASTM A 234/A 234M and ASME B16.9.

I. Grooved-Joint, Steel-Pipe Appurtenances:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Anvil International, Inc.
    b. Shurjoint Piping Products.
    c. Tyco Fire & Building Products LP.
    d. Victaulic Company.

2. Pressure Rating: 250 psig minimum.
3. Uncoated, Grooved-End Fittings for Steel Piping: ASTM A 47/A 47M, malleable-iron casting or ASTM A 536, ductile-iron casting; with dimensions matching steel pipe.
4. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213, rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and bolts and nuts.

2.4 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick.

1. Class 250, Cast-Iron Flanges and Class 300, Steel Raised-Face Flanges: Ring-type gaskets.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

D. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.5 LISTED FIRE-PROTECTION VALVES

A. General Requirements:

1. Valves shall be UL listed or FM approved.
2. Minimum Pressure Rating for High-Pressure Piping: 250 psig.

B. Ball Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Anvil International, Inc.
    b. Victaulic Company.

2. Standard: UL 1091 except with ball instead of disc.
3. Valves NPS 1-1/2 inches and Smaller: Bronze body with threaded ends.
4. Valves NPS 2 inches and NPS 2-1/2 inches: Bronze body with threaded ends or ductile-iron body with grooved ends.
5. Valves NPS 3 inches: Ductile-iron body with grooved ends.

C. Bronze Butterfly Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Fivalco Inc.
    b. Global Safety Products, Inc.
    c. Milwaukee Valve Company.

2. Standard: UL 1091.
3. Pressure Rating: 250 psig.
4. Body Material: Bronze.
5. End Connections: Threaded.

D. Check Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
2. Standard: UL 312.
3. Pressure Rating: 250 psig.
4. Type: Swing check.
5. Body Material: Cast iron.
6. End Connections: Flanged or grooved.

E. Bronze OS&Y Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Crane Co.; Crane Valve Group; Crane Valves.
   b. Crane Co.; Crane Valve Group; Stockham Division.
   c. Milwaukee Valve Company.
   d. NIBCO INC.
   e. United Brass Works, Inc.

2. Standard: UL 262.
3. Pressure Rating: 250 psig.
4. Body Material: Bronze.
5. End Connections: Threaded.

F. Cast Iron OS & Y Gate Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. American Cast Iron Pipe Company; Waterous Company Subsidiary.
   b. American Valve, Inc.
   c. Clow Valve Company; a division of McWane, Inc.
   d. Crane Co.; Crane Valve Group; Stockham Division.
   e. Kennedy Valve; a division of McWane, Inc.
   f. Mueller Co.; Water Products Division.
   g. NIBCO INC.
   h. Tyco Fire & Building Products LP.

2. Standard: UL 262.
3. Pressure Rating: 250 psig minimum.
4. Body Material: Cast iron, factory painted epoxy finish.
5. Stem: Rising stem for tamper switch.
6. End Connections: Flanged or grooved.

2.6 TRIM AND DRAIN VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating: 250 psig minimum.

B. Angle Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Fire Protection Products, Inc.
   b. United Brass Works, Inc.

C. Ball Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Affiliated Distributors.
b. Anvil International, Inc.
c. Conbraco Industries, Inc.; Apollo Valves.
d. Fire-End & Croker Corporation.
e. Fire Protection Products, Inc.
f. Kennedy Valve; a division of McWane, Inc.
g. Legend Valve.
h. Milwaukee Valve Company.
i. NIBCO INC.
j. Potter Roemer.
k. Red-White Valve Corporation.
l. Tyco Fire & Building Products LP.
m. Victaulic Company.
n. Watts Water Technologies, Inc.

D. Globe Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Fire Protection Products, Inc.
b. United Brass Works, Inc.

2.7 SPECIALTY VALVES

A. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating:

a. High-Pressure Piping Specialty Valves: 250 psig minimum.

3. Body Material: Cast or ductile iron.
4. Size: Same as connected piping.
5. End Connections: Flanged or grooved.

B. Commercial Riser Assembly:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. AFAC Inc.
b. Globe Fire Sprinkler Corporation.
c. Reliable Automatic Sprinkler Co., Inc.

d. Tyco Fire & Building Products LP.
e. Victaulic Company.
f. Viking Corporation.

2. Standard: UL Listed and FM Approved.
3. Design: For horizontal or vertical installation.
4. Includes: Butterfly control valve with integral flow switch, check valve, 2" system test and drain valve, electrical sprinkler alarm switch, pressure gauges on inlet and outlet and grooved ends. UL Listed.
5. Basis of Design Manufacturer: Globe Fire Sprinkler Corporation Model UMC.
6. Standard: UL 1726.
7. Pressure Rating: 300 psig minimum.
8. Type: Manual drain ball check.
9. Size: NPS 6 inches.
10. End Connections: Grooved.

2.8 SPRINKLER SPECIALTY PIPE FITTINGS

A. Branch Outlet Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Anvil International, Inc.
b. National Fittings, Inc.
c. Tyco Fire & Building Products LP.
d. Victaulic Company.

2. Standard: UL 213.
3. Pressure Rating: 250 psig minimum.
4. Body Material: Ductile-iron housing with EPDM seals and bolts and nuts.
5. Type: Mechanical-T and -cross fittings.
6. Configurations: Snap-on and strapless, ductile-iron housing with branch outlets.
7. Size: Of dimension to fit onto sprinkler main and with outlet connections as required to match connected branch piping.
8. Branch Outlets: Grooved, plain-end pipe, or threaded.

B. Flow Detection and Test Assemblies:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Reliable Automatic Sprinkler Co., Inc.
b. Tyco Fire & Building Products LP.
c. Victaulic Company.

2. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
3. Pressure Rating: 250 psig minimum.

4. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
5. Size: Same as connected piping.
6. Inlet and Outlet: Threaded.

C. Sprinkler Inspector's Test Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. AGF Manufacturing Inc.
   b. Tyco Fire & Building Products LP.
   c. Victaulic Company.
   d. Viking Corporation.

2. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
3. Pressure Rating: 250 psig minimum.
4. Body Material: Cast- or ductile-iron housing with sight glass.
5. Size: Same as connected piping.
6. Inlet and Outlet: Threaded.

2.9 SPRINKLERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Globe Fire Sprinkler Corporation.
2. Reliable Automatic Sprinkler Co., Inc.
3. Victaulic Company.
4. Viking Corporation.

B. General Requirements:

1. Standard: UL's "Fire Protection Equipment Directory" listing or "Approval Guide," published by FM Global, listing.
2. Pressure Rating for Automatic Sprinklers: 250 psig minimum.

C. Automatic Sprinklers with Heat-Responsive Element:

1. Early-Suppression, Fast-Response Applications: UL 176.
2. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

D. Sprinkler Finishes:

1. Refer to Sprinkler Schedule.

E. Sprinkler Escutcheons: Materials, types, and finishes for the following sprinkler mounting applications. Escutcheons for concealed, flush, and recessed-type sprinklers are specified with sprinklers.

1. Ceiling Mounting: Chrome-plated steel, one piece, flat, plastic, white factory finish, one piece, flat.
2. Sidewall Mounting: Chrome-plated steel, plastic, white factory finish, one piece, flat.

F. Sprinkler Guards:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Reliable Automatic Sprinkler Co., Inc.
b. Tyco Fire & Building Products LP.
c. Victaulic Company.
d. Viking Corporation.

2. Standard: UL 199.
3. Type: Wire cage with fastening device for attaching to sprinkler.

2.10 PRESSURE GAUGES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AMETEK; U.S. Gauge Division.
2. Ashcroft, Inc.
3. Brecco Corporation.
4. WIKA Instrument Corporation.
5. Winters Instrument.

B. Standard: UL 393.

C. Dial Size: 2-1/2-inch diameter, stainless steel case with snubber.

D. Pressure Gauge Range: 0 to 300 psig minimum.

E. Water System Piping Gauge: Include "Water and psig" label on dial face.

PART 3 - EXECUTION

3.1 PREPARATION

A. Provide for and perform a fire-hydrant flow test according to NFPA 13 and NFPA 291. Use results for system design calculations required in "Quality Assurance" Article. Provide for and contact local Water Authority having jurisdiction to schedule test. Provide for all protective measures of site during test.

B. Provide written test results to the Engineer, Water Authority and retain copies for the final O & M Manuals.

3.2 SERVICE-ENTRANCE PIPING

A. Provide for connection of sprinkler piping to water-service piping at service entrance to building. Provide flange with cap 1”-0” above finish floor on inside for continuation of fire protection system. Connect to underground water service 5”-0” inches outside building wall.

B. Provide OS & Y building water shut-off valve with tamper switch, backflow prevention device, pressure gauge, system drain to exterior and other accessories indicated at connection to water-service piping.

3.3 PIPING INSTALLATION

A. Locations and Arrangements: Drawing plans, schematics and diagrams indicate general location and arrangement of piping. Provide piping as indicated, as far as practical. Provide backflow prevention devices in compliance with the local Water Authority and the New York State Health Department Cross Control manual required clearances and dimensions. Refer to plans, sections and details for water service entrance requirements.

1. Deviations from approved working plans for piping require written approval from (AHJ) Authorities Having Jurisdiction. Provide any request in writing to the Architect for all request for design changes from the working plans. Do not commencing with work until written approval has been received.

B. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.

C. Provide listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Provide unions adjacent to each valve in pipes NPS 2 inches and smaller.

E. Provide flanges, flange adapters, or couplings for grooved-end piping on valves and equipment having NPS 2-1/2 inches and larger end connections.

F. Provide an "Inspector's Test Connections" in sprinkler system piping, complete with UL Listed full port ball shutoff valve, and sized and located according to NFPA 13. Discharge shall be to the building exterior and signed provided on the building wall.

G. Provide a 2-inch primary system drain piped to the building exterior above grade and to discharge to a storm sewer, street or a point acceptable by the owner. Drains shall not discharge to sidewalks in areas of traffic and or subject to freezing. Refer top plans for locations of system drains. Provide secondary system drains as required to drain basement piping or levels below exterior grade to floor drains or mop service sinks. Secondary drains shall be provided with a control valve to control flow of drainage to receiver. Provide drains at system low points and at locations of trapped piping. Provide quarter turn full port ball hose end drain valves with caps. Drain locations shall be provided with NFPA compliant signage. Drains shall be located between 18 inches and 36 inches on walls above finished grade or pavement.

H. Provide sprinkler piping with system drains for complete system drainage. Provide additional hose end drain valves at trapped locations of piping and on long runs of piping.

I. Provide sprinkler floor or zone control valves, test assemblies and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes. Provide flow detection switches and wiring to fire alarm panels for each zone or floor.

J. Provide an automatic (ball drip) drain valve at each check valve for fire-department hose connection to drain piping between fire-department connections and check valve. Provide and locate the drain piping to discharge to the exterior of the building to grade.

K. Provide electrical flow and tamper switch alarm devices and all low voltage wiring in piping systems. Provide for the coordination of the locations of devices and final power requirements with the Electrical Contractor or Division 26.

L. Provide all hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13. Provide floor supports at each floor and a support mid-point of floor decks attached to building structure. Provide sway bracing on piping 4 inches and larger at changes in direction.

M. Provide pressure gauges on riser or feed main and at each sprinkler test connection. Include pressure gauges with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gauge and valve. Provide gauges to permit removal for replacement and install where they will not be subject to freezing.

N. Fill sprinkler system piping only with clean potable water.

O. Provide escutcheons for piping penetrations of walls, ceilings and floors. Comply with requirements for escutcheons specified in Section 21 0518 "Escutcheons for Fire-Suppression Piping."

3.4 JOINT CONSTRUCTION

A. Provide couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.

B. Provide unions adjacent to each valve in pipes NPS 2 inches and smaller.

C. Provide flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus and equipment having NPS 2-1/2 and larger end connections.

D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe. Remove pipe coupons from the inside of drilled piping.

E. Remove scale, slag, dirt and debris from inside and outside of pipes, tubes and fittings before assembly.

F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

H. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to "Quality Assurance" Article.

1. Shop weld pipe joints where welded piping is indicated. Do not use welded joints for galvanized-steel pipe.

I. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

J. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.5 VALVE AND SPECIALTIES INSTALLATION

A. Provide only listed fire-protection valves, trim and drain valves, specialty valves and trim, controls and specialties according to NFPA 13 and authorities having jurisdiction.

B. Provide listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Provide permanent identification signs indicating portion of system controlled by each valve, FDC, and system drain or test location.

C. Provide a check valve on Fire Department connection piping to supply. Provide schedule 40 galvanized steel piping.

D. Specialty Valves:

1. General Requirements: Provide in vertical position for proper direction of flow, in main supply to system.

3.6 SPRINKLER INSTALLATION

A. Provide sprinklers in suspended ceilings in the center of or quarter panels of acoustical ceiling panels. Coordinate locations with placement of lighting, diffusers and alarm devices.

B. Provide dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.

3.7 IDENTIFICATION

A. Provide for all signage, labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

B. Identify system components, wiring, cabling and terminals. Comply with requirements for identification specified in Section 26 0553 "Identification for Electrical Systems."

3.8 FIRE STOPPING INSTALLATION

A. Fire-Barrier Penetrations: Maintain indicated fire rating of all walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire stop materials. Comply with requirements for fire stop materials and installations in Division 07 Section "Penetration Fire stopping."

3.9 FIELD QUALITY CONTROL

A. Provide for the following tests and inspections.

B. Tests and Inspections:

1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
2. Test and adjust valves, controls and safety devices. Replace damaged and malfunctioning controls and equipment.
3. Flush, pressure test and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
4. Energize circuits to electrical equipment and devices.
5. Provide for coordination with the electrical or fire alarm contractor with fire-alarm tests. Operate systems as required.
6. Confirm that the fire department hose connection conforms with the local fire-departments requirements.

C. The sprinkler piping system will be considered non-operational if it does not pass tests and inspections. Provide for inspection of joints for leaks and system tightness and re-test as necessary until system pass test.

D. Provide for and prepare written pressure test and system inspection reports on NFPA forms and submit to the Engineer and provide copies for the final O & M Manuals.

3.10 CLEANING AND PAINTING

A. Clean and remove dirt and debris from piping and all sprinklers during the progress of work.

B. Remove and replace sprinklers with paint other than factory finish. Only sprinklers with their original factory finish are acceptable. Remove and replace any sprinklers that are painted or have any other finish than their original factory finish.

C. All sprinkler system and or standpipe piping exposed to public view, interior and exterior, including service entrance rooms, fire pump rooms, stairwells and mechanical spaces shall be painted. Provide for one coat of rust inhibitor, one coat of primer and two coats of finish paint metal alkyd enamel on all piping, fittings and surfaces not supplied with a factory finish. Exterior components including drains and fire department connections shall be painted. (Final color red or as determined by architect in aesthetically sensitive areas.

3.11 PIPING SCHEDULE

A. Piping between Fire-Department Connections and Check Valves and at backflow prevention device test connections: Galvanized, schedule 40-weight steel pipe.

B. Standard-pressure, wet-pipe sprinkler system, NPS 2 inches and smaller, shall be the following:

1. Standard-weight, schedule 40, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.

C. Standard-pressure, wet-pipe sprinkler system, NPS 2-1/2 inches to NPS 4 inches, shall be one of the following:

1. Standard-weight, schedule 40, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
2. Schedule 10, black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
3. Standard-weight, black-steel pipe with plain ends; steel welding fittings; and welded joints.

D. Standard-pressure, wet-pipe sprinkler system, NPS 5 inches and larger, shall be one of the following:

1. Standard-weight, schedule 40, black-steel pipe with plain ends; steel welding fittings; and welded joints.
2. Schedule 10, black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.

3.12 SPRINKLER SCHEDULE

A. Provide sprinkler types in subparagraphs below with finishes indicated.

1. Concealed Sprinklers: Chrome plated, with factory-painted white cover plate.
2. Upright Pendant and Sidewall Sprinklers: Chrome plated.

B. Spare Sprinklers

1. Provide a minimum of six (6) spare sprinklers for each type and temperature rating of sprinkler that is used on this project.
2. Provide a spare sprinkler head box(s) and locate at a wall adjacent to the system riser.
3. Provide spare sprinklers in spare sprinkler cabinet labeled “spare sprinklers”. Mount on wall near sprinkler riser in accessible location.
4. Provide the appropriate sprinkler wrench for each type of sprinkler used on the project.

C. Provide sprinkler types in subparagraphs below for the following applications:

1. Rooms without Ceilings: Upright sprinklers.
2. Rooms with Suspended Ceilings: Pendent, recessed, flush, and concealed sprinklers as indicated.
3. Wall Mounting: Sidewall sprinklers.
4. Spaces Subject to Freezing: Sidewall, dry sprinklers as indicated.

D. Provide sprinkler types in subparagraphs below with factory applied finishes indicated.

1. Concealed Pendent Sprinklers: Rough brass, with factory-painted white cover plate.
2. Flush Pendent Sprinklers: White, with painted white escutcheon.
3. Recessed Pendent Sprinklers: White, white escutcheon.
4. Upright and Sidewall Sprinklers: Brass in finished spaces exposed to view; rough bronze in unfinished spaces not exposed to view; wax coated where exposed to acids, chemicals, or other corrosive fumes.

END OF SECTION 211313

SECTION 230130 – MECHANICAL CLEANING OF HVAC SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this section.

1.2 GENERAL

A. Refer to General, and Special Conditions for other requirements included and outlined in other sections of the specifications.

1.3 SCOPE OF WORK

A. Provide all labor, materials, facilities, equipment and services to thoroughly clean existing HVAC ducted systems as shown on the drawing. The contractor will provide the estimated dates from start to finish to perform the cleaning services.

B. The cleaning work is to include but not limited to the following components:

1. All supply and return ductwork, lined and unlined, including ductwork plenums, branches, risers, etc.
2. All associated air terminal devices, i.e. supply diffusers, return registers, etc.
3. Fire and fire/smoke dampers.

C. Contractor will provide all labor, material, and services to obtain access to HVAC units and associated components including:

1. Removal of ceiling tiles.
2. Installation of new access panels and removal/replacement of existing panels.
3. See Section 3.9 for specification on reinstallation of removed materials.

D. The bidders are encouraged to visit the site prior to submission of a bid proposal, to compare site conditions with drawings and/or specifications and to satisfy themselves of conditions existing at the site and all other matters that may be incidental to the work performed under this contract. No allowance will be made to the successful contractor by reasons of any error on his/her part due to neglect to comply with the requirements of this paragraph. No extra charge will be allowed for work caused by unfamiliarity with the work area.

E. It is the responsibility of the contractor to verify field conditions before start of work.

F. The Contractor will repair and replace to match existing materials where access to walls or ceilings was made, or damage occurs, including but not limited to:

1. Ductwork and components.
2. Insulation.
3. Pneumatic and electric control components.
4. Others as applicable.

G. Scope of work also includes the following:

1. The contractor on the basis of field inspections and review, must determine the method of cleaning the HVAC systems and its components, to prevent any damage to the system and its operation. Upon completion of the initial inspection the contractor will notify the Project Engineer of the proposed methods and their effects on the system.
2. Reset all balancing dampers to original settings if moved during work. Be sure to mark original position so that during the final inspection original settings can be field verified.
3. Report to Project Engineer any system defects discovered during the cleaning operation, which will require repair to an HVAC system (e.g. equipment, ductwork, dampers, registers, etc.).
4. Others as applicable.

1.4 QUALITY ASSURANCE

A. The contractor shall have the following qualifications:

1. Shall be a current member in good standings of the National Air Duct Cleaners Association (NADCA).
2. Shall have at least two (2) certified NADCA Air System Cleaning Specialist (ASCS) on staff as full-time employees.
3. Shall have at least three (3) years of experience in air systems and ductwork remediation.
4. Shall produce a reference list to the Owner and Project Engineer of projects successfully completed of a similar size and scope. If fiberglass lining inside ductwork is to be cleaned and coated, specific projects references must be supplied.
5. Shall produce current certificates for ASCS certified personnel.

B. The project shall be supervised on-site at all times by a person who has been certified by NADCA as an Air Systems Cleaning Specialist (ASCS).

C. Ductwork shall be cleaned in compliance with latest edition of the following standards:

1. Assessment, cleaning and restoration of HVAC Systems (ACR 2005).
2. Plans and Specifications, which exceed the requirements in any of the referenced standards.
3. Requirements for the Installation of Service Openings in HVAC Systems, NADCA 05-1997.

D. All sheet metal shall be fabricated and installed by an experienced Contractor specializing in this type of work and approved by the Engineer.

1.5 SUBMITTALS TO THE ARCHITECT/ENGINEER/OWNER

A. Current National Air Duct Cleaners Association corporate membership certificate.

B. Current Air System Cleaning Specialist certificate for two (2) currently employed personnel of the contractors company.

C. Current Insurance Certificates for:

1. Commercial General Liability Coverage.
2. Contractors Pollution Liability Coverage.
3. Environmental Consultants Professional Liability Coverage.
4. Minimum Limits required for all coverages:

a. Each Claim: $1,000,000
b. General Aggregate Limit: $2,000,000
Note: Coverage's must not exclude mold.

D. Detailed description of cleaning methods, equipment and procedures to be in conformance with the various sections of this specification.

E. Provide MSDS sheets on all solvents, cleaners and disinfectants to be used on the project.

F. Provide submittals on any equipment or materials replacing the existing during the remediation process, i.e. diffusers, flex duct, fire dampers.

G. Location of all proposed duct penetrations and ceiling access holes in plaster ceilings, on existing shop drawings if applicable.

H. (Optional – use only if Building Performance / IAQ Monitoring is included in Verification section 3.6D) Air Testing Qualifications and Experience, and description of air quality monitoring equipment, plus current calibration certificates.

PART 2 - PRODUCTS

2.1 DUCT ACCESS DOORS

A. Access doors for uninsulated rectangular and flat oval ductwork shall be the "Sandwich type" access doors as manufactured by Ductmate Industries, Inc. – Model DMUD.

B. Access doors for insulated rectangular and flat oval ductwork shall be the "Sandwich type" access doors as manufactured by Ductmate Industries, Inc. – Model DMAD.

C. Access doors for insulated and uninsulated round ductwork shall be the "Sandwich type" access doors as manufactured by Ductmate Industries, Inc. – Models DMRAD and DMRUD.

D. Access doors for high temperature and stainless steel applications shall meet the existing ductwork design requirements, similar to the "Sandwich type" access doors as manufactured by Ductmate Industries, Inc. – Models DMADF1, DMADF2, DMRDF1, and DMRDF2.

E. Fabricate in accordance with SMACNA Duct Construction Standards.\

F. Review locations with the Project Engineer prior to installation.

G. Access doors with sheet metal screw fasteners are not acceptable.

H. All doors must be leak tight at the completion of the job.

I. Access doors for medium to high pressure ductwork (over 2.0" sp) shall be designed accordingly.

2.2 DUCT DEODORIZER

A. Equal to Madacide, as supplied by Mateson Chemical, EnviroCon as manufactured by Bio-Cide International, Inc., or approved equal.

2.3 SANITIZER

A. Only an EPA registered sanitizer that is specific for application inside HVAC / ductwork systems shall be applied, e.g. An EPA registered sanitizer “Oxine” as manufactured by Bio-Cide International, “BBJ” microbiocide as manufactured by BBJ Chemical Compounds. “Airkem NR Quat” as manufactured by Airkem Industrial Products, or approved equal. Application shall be in compliance with label instructions. Sanitizers shall not be applied to fiberglass surfaces such as fiberglass liner.

2.4 SURFACE TREATMENTS

A. A duct liner adhesive coating, Foster 40-10, 40-20 or 40-23, as manufactured by Foster Products Corporation, Cover A1 as manufactured by Mateson Chemical Corporation, or approved equal shall be used. It shall be a quick setting waterbase adhesive and coating designed for field application to faced or unfaced fiberglass duct liner insulation, or to unfaced fiberboard ductboard insulation. The coating shall dry to form an effective air erosion preventative coating, sealing, and reinforcing the surface. The coating shall be resistant to fire, water, oil, grease, bacteria, and fungus.

B. A mechanical insulation repair coating, Tough Coat, as manufactured by Vac System Industries, Inc., or approved equal shall be used. The coating material shall contain an anti-microbial agent, shall not affect the thermal or acoustic properties of the insulation, and shall conform to NFPA Standards 90A & 90B. The coating shall dry to form an effective air erosion preventive coating, sealing, and reinforcing the surface. The coating shall be resistant to fire, water, oil, grease, bacteria, and fungus.

2.5 HVAC AND PLENUM SURFACE COATINGS

A. Non-Porous Surface.

1. The paint shall be Porta-Sept as manufactured by Porter Paints, Inc., Foster 40-26 as manufactured by Foster Products Corporation, or approved equal. Paint shall contain an EPA registered anti-microbial, Intersept, which inhibits the growth of bacteria, mold, mildew, and fungi.

B. Porous Surface:

1. The coating shall be Tough-Coat as manufactured by Vac Systems Industries, Foster 40-10, 40-20 or 40-23 as manufactured by Foster Products Corporation, or approved equal. Coating shall meet NFPA Standards 90A & 90B and contain an anti-microbial agent.

2.6 DUCT LINING

A. To match existing or refer to Section 3.4 A Air Handling Unit Refurbishing.

2.7 GASKETING

A. To match existing.

PART 3 - EXECUTION

3.1 PRE-CLEANING PREPARATIONS

A. Prior to start of work, the HVAC system is to be carefully inspected and checked for all conditions affecting the cleaning. Defects are to be reported in writing to the Project Engineer and work will not proceed until all defects have been documented. Commencement of work will constitute acceptance of the conditions of the area to which the cleaning work is to be performed and all defects in work resulting from such accepted service will be corrected by this trade without additional expense to the Owner. No cleaning is to be performed to ducts where the process has the capability of damaging the duct lining. The decision to clean and/or encapsulate these areas will be made by the Project Engineer after review of the contractor's findings and the Project Engineer has seen the field conditions.

B. Disassemble all removable items as required for access to work area. Store the removables in a Project Engineer approved storage area until the completion of the cleaning work.

C. Fire protection devices (such as smoke detectors, panel, etc.) shall be protected prior to cleaning procedures. They are to be cleaned and tested at the conclusion of work.

D. The contractor shall coordinate the shutdown and reactivating of the fire alarm system to avoid accidental alarms during cleaning process and related work.

E. The contractor shall coordinate the shutdown of the air handling equipment with the Owner before starting work, and shall conform to OSHA requirements regarding fan motor disconnect lock-out/tag-out.

3.2 CLEANING PROCEDURES

A. Sequence of work on each Air Handling system.

1. Review area with the Project Engineer.
2. Determine locations of HVAC units, ductwork, ventilation needs, sensitive equipment protection requirements, access, and cleaning procedures.
3. Notify Maintenance Staff to shut down the Air Handling System(s).

3.3 CLEANING AND REMOVAL METHOD

A. The following general ductwork cleaning procedures are to be used as a guideline throughout the project. Methods, which require the least amount of access openings, without compromising proper agitation and source removal, are required. Determination of which method should be used in each area is to be made by the Contractor and Project Engineer. Contractors are to provide detailed procedures in their bid proposal. Deviations from specified methods of removal must be approved by the Project Engineer prior to their implementation.

B. Methods

1. Debris Collection Equipment

a. Equipment used shall be portable and sized to enter the areas easily. Electrical requirements shall be the responsibility of the Owner, and any costs incurred due to modifications to the electrical systems shall be at the Owner's expense.
b. The collection systems shall be self-contained units, with the appropriate components to adequately collect dirt and debris loosened from the ductwork. Debris collection is to be performed by a high powered vacuum system with three stages of filtration. The final stage shall be a HEPA filter. HEPA filter efficiency shall be 99.97% @ 0.3 micron.
c. The collection system shall be capable of producing a minimum of 2,500 cfm, 0.42" water gauge negative static pressure and 0.25" water gauge velocity pressure in the area of ductwork to be cleaned.
d. Where contact vacuuming is required, the equipment used shall be HEPA filtered vacuums. These vacuums shall be capable of at least 95 cfm at 88" water column. The vacuum shall have at least four (4) stages of filtration with the final stage being a HEPA filter.

2. Agitation Equipment
The Contractor is required to remove all debris from the inside surface areas, e.g. the top, bottom, and sides of rectangular duct, and the entire inside circumference of round and flat oval ductwork by creating the least amount of access openings possible. The following restrictions for agitation tools shall be adhered to:

a. High power/volume vacuum alone is not an acceptable method of agitation.
b. The agitation equipment shall be the Collom™ Duct Cleaning System or approved equal.
c. Approved equal agitation systems shall be accepted only if the following conditions are met:

1) The system is capable of thoroughly cleaning (and sanitizing) up to 50 lineal feet of ductwork in each direction per access point. Exceptions to this requirement will apply only when the removal of the debris requires more aggressive agitation.
2) A minimum of 85 cubic feet per minute (cfm) of compressed air at 100 pounds per square inch (psi) must be supplied to the air tool or nozzle in order to effectively dislodge the built-up debris.
3) The air tool or nozzle shall be able to follow the contours of the ductwork, i.e. the tool must be able to come in contact with all sides/surfaces of the interior of the duct.
4) The air tool or nozzle shall be capable of dispensing coatings or sanitizing solutions to cover the entire interior surface areas of the ductwork without creating additional access openings in order to maintain the integrity of the ductwork.

d. Where ductwork is large enough, and able to support the weight of a worker, hand tools and HEPA vacuums may be used. If workers enter the inside of the duct they must follow the OSHA confined space requirements (OSHA 29 CFR 1910.146). Collection equipment must be used during this process to assure capture of any residual or airborne debris.

e. Other acceptable agitation methods, such as hand brushes, scrapers and electric brushes may be used provided that the requirement to minimize access openings is strictly adhered to. This equipment selection shall be required to contact all sides of the duct regardless of size and configuration.

C. Open Ductwork

1. During the cleaning process, provide temporary closures of metal or taped polyethylene on open ductwork, or around the open ceiling area to prevent the dust during the cleaning process from dispersing throughout the work area.

D. All lined ductwork is to be cleaned and refurbished as required. Refurbishing shall be done through applying a coating or surface treatment to the entire surface. The Engineer shall inspect the ductwork after refurbishing to assure proper coverage and coating has been achieved.

E. Controlling Odors

1. All responsible measures shall be taken to control any and all offensive odors and/or mist vapors generated during the cleaning process.

F. Containment

1. Precautions must be taken to ensure that debris is not dispersed outside the Air Conveyance System during the cleaning process.

3.4 CLEANING OF HVAC COMPONENTS

A. Volume, Fire, and Zone Dampers:

1. Duct mounted volume, fire, and zone damper sets are to be marked to their current setting, then inspected and cleaned if necessary. External moving parts are to be treated with an approved dry lubricant material. After cleaning, the dampers shall be repaired as necessary to insure proper operation and returned to original settings. Contractor shall indicate locations of damaged and/or repaired dampers.

B. Grilles, Registers, and Diffusers:

1. Whenever the grilles, registers, and diffusers (GRD) are removable, they shall be removed, washed, dried, sanitized, and replaced. When the GRD are restricted by a façade or welded in place, hand vacuuming and cleaning are acceptable. The Contractor shall avoid disturbing the existing volume damper settings. The Contractor is not responsible for cleaning the debris built-up on the ceiling.

3.5 FINAL INSPECTION

A. A final check is to be carried out to ensure that no dust or debris remain on surfaces as the result of dismantling operations.

B. The Project Engineer will thoroughly inspect the space jointly with the Contractor, to determine whether any damage has been done on the finishes, equipment or any other part of the work space. A final inspection report will be prepared jointly between the Project Engineer and the Contractor detailing the list of items to be fixed by the Contractor.

3.6 VERIFICATION

A. General verification of cleanliness will be determined after Mechanical Cleaning and before the application of any treatment or introduction of any treatment-related substance. Verification of Non-Porous Surface cleaning and Verification of Coil Cleaning shall be conducted after Mechanical Cleaning and before the system is restored to normal operation.

B. A visual inspection of porous and non-porous HVAC system components can be made by an owner's representative or project engineer. It is the contractor's responsibility to document the visibly clean systems with photographs or video recording. An interior surface is considered visibly clean when it is free from no-adhered substances and debris. If a component is visibly clean then no further cleanliness verification methods are required. In the event the visual inspection is not conclusive then a Surface Comparison test must be used, per NADCA's ACR 2005 Section 12.2 Verification of Non-Porous Surface Cleaning.

1. All Non-Porous Interior Duct/Air Handling Unit surfaces must be visibly clean and capable of passing the NADCA Visual Test.
2. The weight of debris collected by the NADCA Vacuum test, as outlined in Appendix A of the NADCA Standards, shall not exceed 10.0 mg/100 cm2. (Optional, based on requirements of Owner).
3. Refer to attached NADCA 1992-01 Standard for more detail, protocol, and verification standards.

C. Verification of Coil Cleaning:

1. Mechanical Cleaning must restore the Coil-Pressure Drop to within 10 percent of the Pressure Drop measured when the Coil was first installed. If the original Pressure Drop is not known, the coil will be considered clean based on a thorough Visual Inspection.

D. Verification of HVAC Performance / Indoor Air quality (IAQ) Compliance.

1. Contractor will use calibrated instruments to measure and document the delivered performance of the HVAC system and IAQ parameters at representative times and in representative occupied spaces. Testing parameters to include: temperature, relative humidity, carbon dioxide, total volatile organic compounds, oxone, radon, and carbon monoxide. Above parameters must be monitored for a minimum of 24 hours in representative area(s) during normal occupancy. Scope of testing is limited to the areas where HVAC system cleaning has been performed unless otherwise specified. The number of monitoring locations is to be determined by the greater of: a) the number of air handling units, b) number of floors, or c) 20,000 square feet of area. Methods for testing must be consistent with applicable EPA methods. Submit report showing results and any variances with EPA, ASHRAE, and OSHA standards and guidelines. Contractor is not responsible for any adjustments or corrections in the event testing parameters are outside of compliance levels.

3.7 SEQUENCE OF WORK

A. The Air Conveyance Systems to be cleaned are usually required to remain running and operational during the normal work hours. The Contractor shall submit to the Project Engineer a procedure and schedule for cleaning the ductwork and installing filters, which will minimize contamination of already cleaned areas. This schedule must be approved by the Owner and Project Engineer prior to starting work.

3.8 SANITIZATION

A. If microbial contamination is found during the Precleaning Preparations (refer to Section 3.1). A sanitizing agent shall be applied to all supply and return air metal only ductwork cleaned as part of this project. Application and preparation shall be as per manufacturer's recommendations.

3.9 RESTORATION

A. Repair and restore space in accordance with the final inspection list specified herein. If no additional modification of the work space is to take place, re-install all removable equipment and fixtures back in the space.

B. Any damages to the finishes, floor, walls or any other item or fixture that has been the result of actions by the contractor personnel is to be repaired to their original condition without any additional costs.

C. Reinstall existing and install new accessories in accordance with manufacturer's instructions.

D. Demonstrate re-setting of fire and balancing dampers to authorities having jurisdiction and Owner's representative.

E. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers at fire dampers, and elsewhere if required. Provide suitable size access doors for hand access or shoulder access where necessary.

F. Re-connect mixing box to ducts. Replace flexible ducts, clamps and gasketing if damaged during removal.

G. Re-connect diffusers to ducts, replace straps or clamps and flexible duct if damaged during removal.

H. Repair or replace duct insulation damaged during work. Materials to match existing.

3.10 REPORT

A. The Contractor will submit three (3) copies of the final report to the Project Engineer outlining the conditions and work completed on the HVAC system.

B. The report shall contain photographic or video documentation of representative areas of the ductwork systems cleaned as part of the project. This photo documentation report may contain both before and after pictures verifying the systems are clean, but a minimum must contain after pictures that show the system is free from non-adhered substances and debris.

C. The report shall contain a detailed list of areas of the system found to be damaged, in need of repair, and / or requiring more aggressive cleaning.

D. (Optional) Verification of HVAC Performance / IAQ Compliance.

1. Submit report per Section 3.6 C above.

3.11 CONTRACTOR PERFORMANCE

A. If during the term of the contract, the Contractor:

1. Repeatedly fails to provide the level of services required under the contract
2. Fails to fulfill services required in accordance with agreed schedule, or
3. Fails to comply with any other terms and conditions outlined in the Contract, the Owner will have the right to terminate the contract. Prior to termination, the Owner will:

a. Meet with Contractor to give him/her an opportunity to respond to complaints.
b. Establish a remedial period for the contractor to correct service deficiencies and/or defaults within the remedial period, the Owner will terminate the contract.

END OF SECTION 23 0130

SECTION 230510 - BASIC MECHANICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Mechanical sleeve seals.
3. Sleeves.
4. Escutcheons.
5. Grout.
6. Mechanical demolition.
7. Equipment installation requirements common to equipment sections.
8. Concrete bases.
9. Supports and anchorages.

1.3 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, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 SUBMITTALS

A. Welding certificates.

B. All mechanical equipment and systems.

1.5 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Mechanical Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 23 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

A. Refer to individual Division 23 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12.

G. Solvent Cements for Joining Plastic Piping:

1. ABS Piping: ASTM D 2235.
2. CPVC Piping: ASTM F 493.

2.3 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

B. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

C. Pressure Plates: Carbon steel. Include two for each sealing element.

D. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.4 SLEEVES

A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

2.5 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated.

2.6 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 MECHANICAL DEMOLITION

A. Refer to Section "Cutting and Patching" and "Selective Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove mechanical systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

D. All cutting and patching associated with the Mechanical work shall be the responsibility of the Mechanical Contractor. Walls, floors, ceilings and roofing shall be returned to the original condition. Flashing of all roof penetrations for equipment in the mechanical contract shall be included in the mechanical contract. Ceiling removal, storage and reinstallation shall be included in the mechanical contract. All surfaces and equipment shall be returned to their original condition.

3.2 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

E. All lubrication shall be performed per the manufacturers printed instructions prior to start-up.

3.3 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 05 Section "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment. The mechanical contractor shall be responsible to furnish and install all miscellaneous steel (not shown on the structural drawings), and equipment for the support of equipment furnished under their contract. All welding shall be performed by certified welders.

C. All lintels required for the mechanical work shall be furnished and installed by the mechanical contractor.

D. Field Welding: Comply with AWS D1.1.

3.4 FIRE-STOPPING

A. Contractor shall be responsible for fire-stopping of all openings around mechanical systems at fire and smoke rated wall and floor assemblies.

B. Provide materials and products listed by an approved independent testing laboratory for "Through-Penetration Fire-Stop Systems." The system shall meet the requirements of "Fire Tests of Through-Penetrations Fire-Stops" designated ASTM E814.

C. Provide rated, fire-stop system seals at all locations where piping, tubing, conduit, electrical busways/cables/wires and ductwork pass through or penetrate fire rated wall or floor assembly. Provide fire-stop seal between sleeve and wall for drywall construction.

D. Fire StoppingSystems

1. Safing Insulation

a. Unfaced, semi-rigid batt insulation, produced by combining semi-refractory mineral fibers from slag with thermosetting resin binders, to comply with ASTM C 612 for the Class indicated; passing ASTM E136 for combustion characteristics; and as follows:

1) Medium Density Semi-Rigid Board: Class 3, nominal density of 6 lbs. per cu. ft., R-value of 4.16 at 75 degrees F.; United States Gypsum "Thermafiber Fire Safing Insulation"; Manville Engineered Systems Group "Pyro-Fiber".

b. Fire Stopping Sealants

1) At all large penetrations through fire-rated walls and floors, such as multiple conduits or pipes routed through a single opening; single component, pourable, trowel finished, water based endothermic fire protection sealant; 3M "FireDam 150 Caulk".
2) At all cracks, slots, small holes through fire-rated walls & floors: gun-grade sealant; 3M "FireBarrier Caulk", CP "25 N/S No-Sag", and CP "25 S/L Self-Leveling".
3) Acceptable Equivalent: USG Interiors "Thermafiber Smoke-Seal Compound".

E. Installation of Firestopping Systems

1. Safing insulation and firestopping sealant system: (Similar to UL System No. HW-S-0001 for 1 & 2 hour rated partitions)

a. Seal all gaps at perimeter of floor slabs; all openings between floors; all penetrations through fire separate zones; as required to maintain the fire rating of wall assemblies and floor/ceiling assemblies; and as indicated on the drawings.
b. Install firestopping safing insulation in strict accordance with manufacturer's printed instructions. Pack each void space completely full with safing insulation. Do not use thermal or acoustical insulation for this purpose. Leave one half inch recess for firestopping sealant.
c. Apply fire stopping sealant to furnish the closure, using a standard caulking gun, trowel, or other acceptable method, in accordance with the manufacturer's printed instructions.
d. Do not install safing insulation, fireproofing, or firestopping sealants until the construction has progressed to the point that they will not be wet or damaged by inclement weather.

3.5 TRAINING

A. Prior to acceptance of all systems and equipment, the contractor, along with his subcontractors and vendors, shall instruct and train the owner's representatives on the operation and maintenance of all aspects of the new systems. Owner shall be given ample time to schedule training dates and personnel. Training sessions shall be given at intervals of 4 hours long. Training literature for startup procedures and maintenance shall be included in the O&M Manuals. All training sessions shall be video taped by the contractor and turned over to the Owner in a DVD format.

3.6 SYSTEM COMMISSIONING AND TESTING

A. All new heating and ventilating systems and equipment shall be started up and operated at normal operating temperatures for a period of 24 hours (minimum) to "bake-off" the equipment. The associated ventilation systems shall run on 100% outside air during this procedure for an additional eight hours to purge the building. This work shall be completed prior to school occupancy, or if the work is not completed in time for summer "bake-off", on a Saturday with the Contractor responsible for being on the site during the entire purge and bake-off operation.

B. Prior to commencement of work, the Contractor effecting such system shall survey all building electrical systems and components, including fire alarm, security, communications, clock and computer; make written notice to the Owner regarding existing damages, missing items and incomplete systems. Prior to the conclusion of this project, the Contractor shall verify with the owner's representatives that all building system has been returned to their original conditions.

C. Commissioning and testing of HVAC systems shall occur while the school is not occupied by students, and only after notice to the Owners Representative is made at least 24 hours in advance. The Mechanical Contractor shall be responsible for providing filter media over all supply air registers and diffusers during the HVAC system start-up procedure. The Mechanical Contractor shall provide airtight plastic covers over all supply and return openings prior to the start of construction by any contractor. The plastic shall be maintained airtight throughout the project construction and removed only with the approval of the owner's representative.

3.7 CUTTING AND PATCHING

A. Each trade shall include their required cutting and patching work unless shown as art of the General Construction work on the architectural drawings. Refer to "General Conditions of the Contract for Construction," for additional requirements. Cut and drill from both sides of wall and/or floors. Patch abandoned holes left by removal of equipment or fixtures. Patch adjacent existing work disturbed by installation of new work including insulation.

3.8 PAINTING

A. Include painting for patch work with color to match adjacent surfaces. Where color cannot be adequately matched, paint entire surface. Provide one (1) coat of primer and two (2) finish coats. Refer to General Construction Specifications for additional information.

B. All Mechanical, Electrical, Plumbing and Fire Protection components shall be painted by the Division installing the work.

C. All painting shall consist of one (1) prime coat and two (2) finish coats on non-lead oil base paint, of color as selected unless otherwise indicated herein. Color-coding of all piping shall be done. Paint shall be comparable to Baltimore Paint Company. Provide heat resistant paint where temperatures are over 400°F. Provide Pittsburgh galvanized iron primer for all galvanized surfaces. All surfaces shall be thoroughly cleaned prior to painting. All rust, scales, dirt, oil, grease, protective film, labels, etc., shall be removed and all corrosion shall be wire brushed to pipe surface.

D. Paint all hangers, supports, brackets, bare iron piping and any other bare iron work including tanks, supports, legs, etc., in all exposed, finished and concealed areas. Copper tubing in exposed areas shall be cleaned and painted chrome plated silver or unless otherwise specified. Cast iron piping in exposed areas shall be cleaned of all mud, rust, scale, debris, etc., and painted. The entire perimeter of all piping shall be painted. Paint all piping if installed in finished rooms.

E. Paint all exterior metal or iron including all piping, stacks, exhaust pipes, supporting metals hardware, etc. This shall include galvanized steel. Paint with galvanized primer and finish with epoxy of color selected. Exterior metal painting shall include all exposed piping, fittings, valves, conduits, boxes, all gas piping on roofs and walls, all hardware, manhole and catch basin covers, water and gas valve box covers, sewer cleanouts, etc.

F. All exposed piping installed on the face of exterior walls shall be painted to match the wall color unless otherwise specified or directed by the Owner.

G. Unless otherwise specified, paint all piping and insulation exposed in Pool Filter Rooms, Boiler Rooms, Mechanical Equipment Rooms, Storage Rooms, Basements, Classrooms rooms without ceilings , and any other exposed to view piping or insulation, including insulation jacket with two (2) coats of oil base paint of color as selected. Piping shall be color coded painted corresponding to labeling.

H. Color coding piping and equipment shall be according to OSHA approved standards. Submit color charts.

I. Paint all uninsulated water pump casings and piping connections to ensure corrosion protection.

3.9 CONCEALMENT

A. Conceal all contract work above ceilings and in walls, below slabs, and elsewhere throughout building. If concealment is impossible or impractical, notify Owner's Representative before starting that part of the work and install only after his review. In areas with no ceilings, install on after Owner's Representative review and comments on arrangement and appearance.

3.10 ACCESS PANELS

A. Access panels shall be furnished by the Mechanical and Electrical Trades and install by General Contractor. Location and size shall be the responsibility of each trade. Access panels over 324 square inches shall have two cam locks. Contractor shall provide proper frame and door type for various wall or ceiling finishes. Access panels shall provide proper frame and door type for various all or ceiling finishes. Access panels shall be equal to "Milcor" as manufactured by inland Steel Products Co., Milwaukee, Wisconsin.

3.11 CONCRETE BASES

A. Provide concrete bases for all floor mounted equipment. Provide 3,000 lb. concrete, chamfer edges, trowel finish, and securely bond to floor by roughening slab and coating with cement grout. Bases 4" high (unless otherwise indicated); shape and size to accommodate equipment. Set anchor bolts in sleeves before pouring and after anchoring and leveling, fill equipment bases with grout.

3.12 FINAL PIPING CONNECTIONS

A. Contractor is responsible for draining, filling, venting, chemically treating and restarting any systems which are affected by work shown on the Contract Documents.

B. Provide final steam, condensate, hot water, glycol, chilled and condenser water, drain, vent, oil line and gas connections to all equipment as required by the equipment. Provide final connections, including domestic water piping, wiring, controls, and devices from equipment to outlets left by other trades. Provide equipment waste, drip, overflow, and rail connections extended to floor drains.

C. Provide for Owner Furnished and Contractor furnished equipment all valves, piping, piping accessories, traps, pressure reducing valves, gauges, relief valves, vents, drains, insulation, sheet metal work, controls, dampers as required.

END OF SECTION 23 0510

SECTION 23 0511 – MECHANICAL, ELECTRICAL AND PLUMBING COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK INCLUDED

A. Work included in this section: Materials, equipment, fabrication, installation, and tests in conformity with applicable codes and authorities having jurisdiction for the following:

1. Motors.
2. Factory-wired equipment (FEW).
3. Factory-wired control panels (FWCP).
4. Motor controllers where provided as part of mechanical equipment.
5. Motor controllers where supplied under Division 23 – Mechanical Work.
6. Disconnects and safety switches for mechanical equipment.
7. Fuses for equipment provided, and starters and disconnect switches.

1.3 REFERENCE STANDARDS

A. Published specification standards, tests, or recommended methods of trade, industry or governmental organization as apply to work in this section where cited below:

1. ANSI – American National Standards Institute.
2. NEMA – National Electrical Manufacturer's Association.
3. IEEE – Institute of Electrical and Electronic Engineers.

1.4 CODE COMPLIANCE

A. All work shall be performed in compliance with the following:

1. New York State Education Department Planning Manual Standards.
2. Building Code of New York State (2020).
3. Mechanical Code of New York State (2020).
4. Fuel Gas Code of New York State. (2020)
5. Plumbing Code of New York State (2020).
6. Fire Code of New York State (2020).
7. Energy Conservation Construction Code of New York State (2020).
8. National Electrical Code (NEC). Latest Edition
9. Occupational Safety and Health Administration (OSHA). Latest Edition.
10. Local Codes and Ordinances of the Town of Andover and Allegany County.
11. Life Safety Codes, NFPA 101.
12. New York Board of Fire Underwriters.
13. Combustion Toxicity Amendment to the New York State Uniform Fire Prevention and Building Code.
14. Underwriters Laboratories.
15. ASHRAE 15 Safety Code for Mechanical Refrigeration.

1.5 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. Supply all equipment and accessories new and free from defects.

C. Supply all equipment and accessories in compliance with the applicable standards listed in Article 1.04 of this Section and with all applicable National, State and local codes.

D. All items of a given type shall be the products of the same manufacturer.

1.6 DIVISION OF WORK

A. This section delineates the work required to be performed by contractors under Divisions 23 and 26.

1.7 WORK REQUIRED UNDER DIVISION 22

A. Furnish motors, manual and combination starters, contactors, disconnect switches, and other electrical devices required for equipment furnished under Division 22. All manual and combination starters, disconnect switches, electrical thermostats shall be installed by the Electrical Contractor, under Division 16. Combination starter/disconnect shall be similar to Allen Bradley 512 with properly sized control transformers. Single phase starters shall be manual thermal switches with pilot lights and properly sized heaters. Thermostats, aquastats, controls and control wiring shall be included under Division 22 contractor.

B. Install all items in piping and ductwork such as aquastats, etc.

C. All external wiring of equipment, all control wiring, external wiring of control circuits of magnetic starters, interlocking wiring and mounting of control devices, etc., shall be included and provided under Division 26. All external wiring shall be in conduit (unless specifically shown to be provided by the Electrical Contractor).

D. Wiring required under Division 22 shall comply with the specifications as described in Division 26.

E. Provide disconnect switches or safety switches for equipment. (Unless specifically shown to be provided by the Electrical Contractor, starters and disconnects shown on the electrical drawings are for installation and do not require the Electrical Contractor to supply units.)

F. Water Heater and Comminuter: The water heater and comminuter shall be provide by the Plumbing Contractor. Provision of the flue vents and accessories along with the control for the comminuter shall be by the Plumbing Contractor under Division 22.

1.8 WORK REQUIRED UNDER DIVISION 23

A. Furnish motors, manual and combination starters, contractors, and other electrical devices required for equipment furnished under Division 23. All manual and combination starters, disconnect switches, electrical thermostats shall be installed by the Electrical Contractor, under Division 26. Combination starter/disconnect shall be similar to Allen Bradley 512 with properly sized control transformers for control components. Include hand-off-auto switches with lights. Single phase starters shall be thermal switches with pilot light and properly sized heaters.

B. Install all items in piping and ductwork such as aquastats, ductstats, etc.

C. All external wiring of equipment, all temperature control wiring, external wiring of control circuits of magnetic starters, interlocking wiring and mounting of control devices, etc., shall be included and provided under Division 23. All external wiring shall be in conduit (unless specifically shown to be provided by the Electrical Contractor).

D. Wiring required under Division 23 shall comply with the specifications as described in Division 26.

E. Provide disconnect switches or safety switches for equipment. (Unless specifically shown to be provided by the Electrical Contractor, starters and disconnects shown on the electrical drawings are for installation and do not require the Electrical Contractor to supply units.)

F. Furnish fuses for all equipment provided by the Mechanical Contractor.

1.9 WORK REQUIRED UNDER DIVISION 26

A. The Electrical Contractor, under Division 26, shall provide all power wiring and conduit to junction box, to disconnect switch on unit, to motor starters and contactors, and between motor starters and contactors to motor or other load. Electrical Contractor shall be responsible for proper direction of rotation for all three-phase equipment. The Electrical Contractor shall mount all starters, disconnects.

B. The Electrical Contractor shall provide disconnect switches (sized as required) or thermal switches with pilot lights, on all mechanical equipment not furnished by Division 23 and as required by the National Electrical code, when equipment is not supplied with same.

C. The Electrical Contractor shall provide single – or three-phase AC power, as required, to all mechanical equipment provided and installed by Division 23.

D. All control devices (thermostats, etc.) required for mechanical equipment operation shall be provided, installed, and wired by the respective Mechanical Contractor.

E. The Electrical Contractor shall disconnect all existing power connections to mechanical equipment prior to removal of equipment by others.

F. The Electrical Contractor shall not purchase materials or initiate roughing work of electrical connections to equipment provided by other Contractors until receipt of reviewed submittals and coordination is completed.

1.10 STORAGE

A. It shall be the contractor's responsibility to provide secure storage of new equipment and contractor's belongings at the construction site. Any equipment lost or damaged prior to acceptance by the owner shall be replaced with new equipment at no cost to the owner.

1.11 RECORD DRAWINGS AND MAINTENANCE MANUALS

A. Refer to Division 01.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Motors:

1. Baldor
2. Siemens
3. General Electric
4. Reliance

B. Motor Controllers and Disconnects:

1. Square D
2. Allen-Bradley
3. Cutler-Hammer
4. General Electric

2.2 MOTORS

A. General: Motors shall conform to NEMA, IEEE, ANSI C50, and AIEE Standards.

B. For motors less than 3/4 HP, furnish squirrel cage induction motors, capacitor-start of split-phase designed to operate on single phase, 60 hertz, 120-volt circuit (NEMA standard motor voltage 115V) with built-in overload protection.

C. For motors 3/4HP and larger, furnish squirrel cage induction or wound rotor induction motors, designed to operate on 3-phase, 60-HZ, 208 or 460-volt circuit (NEMA Type "B": Insulation class, continuous duty standard motor voltage 460V), unless otherwise specified on drawings.

D. Each motor shall not be overloaded by the apparatus it operates under any condition of operation. Where a minimum horsepower capacity is listed, furnish a motor larger than the minimum, if required in any particular case. Pay any additional cost due to necessary increase in feeder sizes, circuit breaker sizes, etc., provided under the Electric Contract.

E. All 3-phase motors shall be built for continuous operation on stated voltage, plus or minus 10% volts.

F. Belt-connected motors. Foundation slide base and shaft as required for aligning pulleys.

G. Service Factor: The "Service Factor" is a multiplier, which applied to the normal horsepower rating indicates a permissible loading within the accepted safe limits of temperature rise for the insulation. Service factor for each motor shall conform to NEMA standards. Service factor for drip-proof enclosures is 1.15.

H. Temperature and Insulation System Class: Conform to NEMA standards for Class B or better. Insulation system rated at 40ºC maximum ambient temperature.

I. Bearings: Equip motors 1/2 HP and larger with ball or roller bearings with pressure grease lubrication.

J. Speed: As required and approved to meet the requirements of the service for which they are intended.

K. Motor Housing: Conform to NEMA requirements for a drip-proof machine unless otherwise specified or indicated on the drawings.

L. NEMA KVA locked rotor CODE LETTER: "G" or better.

M. Efficiency:

1. Per IEEE Standard 112, latest edition, Test Method B.
2. Unless otherwise noted, all motors less than 1 HP shall be of standard efficiency.
3. All motors 1 HP and larger shall comply with the following "High Efficiency" motor schedules as follows. Motors shall have guaranteed minimum efficiencies equivalent to or exceeding the following:

HP	Min. Eff. (%)	HP	Min. Eff (%)
1	85.5	30	93.0
1-1/2	86.5	40	93.6
2	86.5	50	94.0
3	89.0	60	94.5
5	89.5	75	95.0
7-1/2	91.0	100	95.0
10	91.7	125	95.0
15	92.0		
20	92.4		
25	93.0		

2.3 SAFETY SWITCH

A. Square D Co. Heavy Duty Series; Westinghouse Electric Corp. H-600, with the following:

1. Fused or unfused as required.
2. Fused switches equipped with fuseholders to accept only the fuses specified in Section 16181 (U.L. Class RK-1, RK-5, L).
3. NEMA 1 enclosure unless otherwise indicated on drawing or required. 3R for devices installed outdoors.
4. Switch rated 240V for 120V, 208V, 240V circuits; 600V for 277V, 480V circuits.
5. Solid neutral bus when neutral or grounding conductor is included with circuit.
6. Current rating and number of poles as indicated on drawings.

B. Fused and non-fused disconnect switches shall be '2-pole' type with lug for ungrounded B phase' conductor and lug for the grounding conductor.

2.4 NAMEPLATES

A. Phenolic Type: Standard phenolic nameplates with 3/8" minimum size lettering engraved thereon to match existing. Adhesive backing.

PART 3 - EXECUTION

3.1 GENERAL

A. Equipment shall be connected in a neat and skillful manner. Equipment deliver with terminal boxes that are inadequate shall be equipped with special boxes that suite the conditions by the Mechanical Contractor furnishing the equipment.

B. In general, rigid conduit or tubing shall be used, but equipment that requires movement or that would transmit vibration to conduit shall be wired with flexible (liquid tight) steel conduit not over 18" long.

C. All equipment shall be grounding with a green covered ground wire run inside the conduit and connected to equipment frame on one end and to grounding system on the other end. All electrical work required in the Mechanical Contracts shall conform to the applicable requirements of Division 26 of these Specifications.

D. The Mechanical Contractors shall cooperate with the Contractor for Electrical Work in making all necessary tests and in receiving, storing, and setting all motor-driven equipment, electrical devices, and controls furnished and/or installed under these contracts.

E. Install heaters correlated with full load current of motors provided.

F. Set overload devices to suit motors provided

3.2 INSTALLATION

A. Control Wiring:

1. Provide control wiring and connections.
2. Where control circuit interlocking is required between individually mounted motor controllers, provide a single pole on-off switch in a threaded type box mounted adjacent to motor safety switches which are remote from the control transformer (to enable interlock circuit to be opened when the motor safety switch is opened).

B. Nameplates: Adhere the nameplate on the cover of NEMA 1 or 3R enclosures. Provide phenolic nameplates as follows:

1. On each remote control station, indicating motor controlled.
2. On each disconnect switch, indicating purpose of switch.

3.3 DISCONNECTS

A. Motor Controllers: Provide safety switch for all motor controllers.

B. Motors: Provide a disconnect switch for all motors. Provide a separate safety switch for motors which are not within sight of the starter.

C. Provide safety switches for all factory packaged equipment.

D. Provide NEMA 3R safety switch for all rooftop and outdoor equipment.

E. Provide unit mounted disconnect switches for all equipment such as unit heaters, fans, unit ventilators, incremental units, etc.

END OF SECTION 23 0511

SECTION 230529 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Steel pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Thermal-hanger shield inserts.
5. Fastener systems.
6. Equipment supports.

B. See Division 05 Section "Metal Fabrications" for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.

C. See Division 23 Section "Wind and/or Seismic Load Rated Roof Curbs and Restraint Brackets" for vibration isolation devices.

D. See Division 23 Section "Pipe Expansion Fittings and Loops" for pipe guides and anchors.

E. See Division 23 Section(s) "Metal Ducts" for duct hangers and supports.

1.3 DEFINITIONS

A. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Steel pipe hangers and supports.
2. Thermal-hanger shield inserts.
3. Powder-actuated fastener systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze pipe hangers. Include Product Data for components.
2. Metal framing systems. Include Product Data for components.
3. Equipment supports.

C. Welding certificates.

1.6 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Manufacturers:

1. AAA Technology & Specialties Co., Inc.
2. Bergen-Power Pipe Supports.
3. B-Line Systems, Inc.; a division of Cooper Industries.
4. Carpenter & Paterson, Inc.
5. Empire Industries, Inc.
6. ERICO/Michigan Hanger Co.
7. Globe Pipe Hanger Products, Inc.
8. Grinnell Corp.
9. GS Metals Corp.
10. National Pipe Hanger Corporation.
11. PHD Manufacturing, Inc.
12. PHS Industries, Inc.
13. Piping Technology & Products, Inc.
14. Tolco Inc.

C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Manufacturers:

1. B-Line Systems, Inc.; a division of Cooper Industries.
2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
3. GS Metals Corp.
4. Power-Strut Div.; Tyco International, Ltd.
5. Thomas & Betts Corporation.
6. Tolco Inc.
7. Unistrut Corp.; Tyco International, Ltd.

C. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

A. Description: 100-psig minimum, compressive-strength insulation insert encased in sheet metal shield.

B. Manufacturers:

1. Carpenter & Paterson, Inc.
2. ERICO/Michigan Hanger Co.
3. PHS Industries, Inc.
4. Pipe Shields, Inc.
5. Rilco Manufacturing Company, Inc.
6. Value Engineered Products, Inc.

C. Insulation-Insert Material for Cold Piping: Type I calcium silicate, Type II cellular glass with vapor barrier.

D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass.

E. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

F. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

G. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

a. Hilti, Inc.
b. ITW Ramset/Red Head.
c. Masterset Fastening Systems, Inc.
d. MKT Fastening, LLC.
e. Powers Fasteners.

B. B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

a. B-Line Systems, Inc.; a division of Cooper Industries.
b. Empire Industries, Inc.
c. Hilti, Inc.
d. ITW Ramset/Red Head.
e. MKT Fastening, LLC.
f. Powers Fasteners.

2.7 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.8 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of 120 to 450 deg F pipes, NPS 4 to NPS 16 requiring up to 4 inches of insulation.
3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24 requiring clamp flexibility and up to 4 inches of insulation.
4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
5. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30
6. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
7. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
8. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.

H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types: Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.

1. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.

5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:

    a. Light (MSS Type 31): 750 lb.
    b. Medium (MSS Type 32): 1500 lb.
    c. Heavy (MSS Type 33): 3000 lb.

8. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
9. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.

J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.

L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.

N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

E. Fastener System Installation:

1. Install powder-actuated fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

F. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

I. Install lateral bracing with pipe hangers and supports to prevent swaying.

J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

K. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.1 (for power piping) and ASME B31.9 (for building services piping) are not exceeded.

M. Insulated Piping: Comply with the following:

1. Attach clamps and spacers to piping.

   a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
   b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
   c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
4. Shield Dimensions for Pipe: Not less than the following:

   a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
   b. NPS 4: 12 inches long and 0.06 inch thick.
   c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
   d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
   e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.

5. Pipes NPS 8 and Larger: Include wood inserts.
6. Insert Material: Length at least as long as protective shield.
7. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make smooth bearing surface.

C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.6 PAINTING

A. Touch Up: Clean field welds 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 23 0529

SECTION 230593 – TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this section.

1.2 WORK INCLUDED

A. Provide labor, materials, equipment and services to perform operations required for complete adjusting and balancing Work as required in Contract Documents.

B. This Section specifies the requirements and procedures total, mechanical systems testing, adjusting, and balancing. Requirements included measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.

C. Test, adjust, and balance the following mechanical systems:

1. Supply air systems.
2. Return air systems.
3. Exhaust air systems.

D. This Section does not include:

1. Testing boilers and pressure vessels for compliance with safety codes;
2. Specifications for materials for patching mechanical systems;
3. Specifications for materials and installation of adjusting and balancing devices. If devices must be added to achieve proper adjusting and balancing, refer to the respective system sections for materials and installation requirements.
4. Requirements and procedures for piping and ductwork systems leakage tests.

1.3 SUBMITTALS

A. Provide information in report from listing items required by specification. Report will be typed and three copies submitted for review. Results will be guaranteed. Contractor will be subjected to recall to site to verify report information before acceptance of the report by the Owner’s Representative.

B. Report format will consist of the following:

1. Title sheet with job name, contractor, engineer, date, balance contractor’s name, address, telephone number and contact person’s name and the balancing technician’s name.
2. Individual test sheets for air handlers, terminal units, air distribution, exhaust fans, duct traverses, pumps, air handling coils, reheat coils, radiation, convectors, cabinet unit heaters and unit ventilators.
3. Manufacturers pump and fan curves for equipment installed with design and actual operating conditions indicated.

4. One complete set of reproducible record contract drawings single line sketch of systems marked up with terminal unit numbers, room numbers, testports locations, register, grille and diffuser numbers to correlate test sheet. (Number air outlets by room numbers). Data will be provided with reports.
5. Provide commentary of installed systems with respect to deviations from Contract Documents systems performance and craftsmanship of the installation.

1.4 DEFINITIONS

A. System testing, adjusting, and balancing is the process of checking and adjusting all the building environmental systems to product the design objectives. It includes:

1. The balance of air and water distribution.
2. Adjustment of total system to provide design quantities.
3. Electrical measurement.
4. Verification of performance of all equipment and automatic controls.

B. Test: To determine quantitative performance of equipment.

C. Adjust: To regulate the specified fluid flow rate and air patterns at the terminal equipment (e.g., reduce fan speed, throttling).

D. Balance: To proportion flows within the distribution system (submains, branches, and terminals) according to specified design quantities.

E. Procedure: Standardize approach and execution of sequence of work operations to yield reproducible results.

F. Report forms: Test date sheets arranged for collecting test data in logical order for submission and review. This data should also form the permanent record to be used as the basis for required future testing, adjusting and balancing.

G. Terminal: The point where the controlled fluid enters or leaves the distribution system. There are supply inlets on water terminals, supply outlets on air terminals, return outlets on water terminals, and exhaust or return supply or outside air inlets or outlets on terminals such as registers, grilles, diffusers, and louvers.

H. Main: Duct or pipe containing the system’s major or entire fluid flow.

I. Submain: Duct or pipe containing part of the systems’ capacity and serving two or more branch mains.

J. Branch Main: Duct or pipe serving two or more terminals.

K. Branch: Duct or pipe serving a signal terminal.

1.5 QUALIFICATIONS

A. Follow procedures and methods published by one or more of the following:

1. Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB).
2. Individual manufacturer requirements and recommendations.

B. Maintain qualified person at project for system operation, trouble shooting, change pulleys and perform mechanical adjustments in conjunction with balancing procedure.

C. Balancing contractor will be current member of AABC, NEBB or approved by the Engineer.

1.6 GENERAL REQUIREMENTS

A. Before concealment of systems visit the job site to verify and advise on type and location of balancing devices and test points. Make changes as required to balancing facilities.

B. Place systems in satisfactory operating condition.

1. Adjusting and balancing will be accomplished as soon as the system is complete and before Owner takes possession.
2. Prior to balancing adjust balancing devices for full flow, fill, vent and clean hydronic systems, replace temporary filters and strainers.
3. Initial adjustment and balancing to quantities as called for or as directed by the engineer, to satisfy job conditions.
4. Adjusting and balancing will be accomplished under appropriate outdoor temperature conditions. All outdoor conditions (DB, Wb, and a description of the weather conditions) at the time of testing will be documented in the report.
5. Change pulleys as required to meet system performance requirements. Adjust and align pulleys, to obtain proper settings and operation.
6. Replace balancing cocks, flow balancers and dampers in new systems that cannot be manipulated to satisfy balancing requirements.
7. Identify flow balancers, balancing cocks and dampers in existing systems that cannot be manipulated to satisfy balancing requirements.
8. Traverse main ducts to determine total system air quantities after all outlets have been set prior to final adjustment if the system does not meet design requirements. A sum of room cfm's is not acceptable.

1.7 PROJECT CONDITIONS

A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations.

1.8 COORDINATION

A. Coordinate the efforts of factory-authorized service representatives for systems and equipment. HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

B. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.9 WARRANTY

A. National Project Performance Guarantee: Provide a guarantee on AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" forms stating that AABC will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee includes the following provisions:

B. Special Guarantee: Provide a guarantee on NEBB forms stating that NEBB will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee shall include the following provisions:

1. The certified TAB firm has tested and balanced systems according to the Contract Documents.
2. Systems are balanced to optimum performance capabilities within design and installation limits.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Provide tools, ladders, recording meters, gauges, thermometers, velometers, anemometers, Pitot tube, inclined gauge manometers, mangnehelic gauges, amprobes, voltmeters, phychrometers and tachometers required. Instruments used will be accurately calibrated as per AABC or NEBB requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

1. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.

B. Examine approved submittal data of HVAC systems and equipment.

C. Examine Project Record Documents described in Division 01 Section "Project Record Documents."

D. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine equipment performance data including fan curves. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system. Calculate system effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from those presented when the equipment was performance tested at the factory. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," Section 7 through 10; or in SMACNA's "HVAC Systems-Duct Design," Sections 5 and 6. Compare this data with the design data and installed conditions.

F. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Sections have been performed.

G. Examine system and equipment test reports.

H. Examine equipment for installation and for properly operating safety interlocks and controls.

I. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Prepare a TAB plan that includes strategies and step-by-step procedures.

B. Complete system readiness checks and prepare system readiness reports. Verify the following:

1. Permanent electrical power wiring is complete.
2. Automatic temperature-control systems are operational.
3. Equipment and duct access doors are securely closed.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems", NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems", and this Section.

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to insulation Specifications for this Project.

C. Mark equipment and balancing device settings with paint or other suitable, permanent identification material, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, to show final settings.

3.4 PROCEDURES FOR MOTORS

A. Motors: Test at final balanced conditions and record the following data:

1. Manufacturer, model, and serial numbers.
2. Motor horsepower rating.
3. Motor rpm
4. Efficiency rating.
5. Nameplate and measured voltage, each phase.
6. Nameplate and measured amperage, each phase.
7. Starter thermal-protection-element rating.

3.5 FINAL REPORT

A. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in three-ring binder, tabulated and divided into sections by tested and balanced systems.

B. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.

1. Include a list of instruments used for procedures, along with proof of calibration.

C. Final Report Contents: In addition to certified field report data, include the following:

1. Fan curves.
2. Manufacturer's test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance, including, but not limited to:

a. cfm
b. s.p.
c. rpm
d. Amps (nameplate and actual)
e. hp
f. Voltage (nameplate and actual)

3.6 AIR SIDE

A. Test, adjust and record the following:

1. AHU: Fan coil units, air handling units, rooftop packaged air conditioning units. Variable air volume boxes (in both minimum O.A. and economizer mods):

a. Minimum outdoor air Cfm.
b. Total discharge and return Cfm.
c. Static profile thru unit.
d. Complete nameplate data.

2. Coils:

a. Entering air temperature (DB/WB).
b. Leaving air temperature (DB/WB).
c. Static differential.
d. Face velocity and area.
e. Cfm.
f. Complete nameplate data.

3. Registers/Grilles/diffusers:

a. Cfm (within 10%).
b. Set, adjust and record air flow pattern.

4. Filter Banks:

a. Nameplate data.
b. Static pressure drop. Plug all holes in the unit casing once the data is obtained. Holes shall be plugged both inside and outside surfaces on double wall units.

3.7 EXISTING AIR SYSTEMS

A. Prior to demolition of any air and water systems, contractor shall obtain the current operating conditions of the following systems and submit a report labeled “Existing Equipment – Current Operating Conditions”. Include fan curves from the original rooftop unit manufacturer. Include pump curves from the respective manufacturer. Coordinate with the Control Contractor. All data shall be included similar to new equipment.

1. As noted on plans

3.8 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional testing and balancing to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional testing, inspecting, and adjusting during near-peak summer and winter conditions.

END OF SECTION 23 0593

SECTION 230713 - DUCT INSULATION

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 insulating the following duct services:

1. Indoor, concealed supply and outdoor air.
2. Outdoor, supply and return air.
3. Indoor, concealed return located in unconditioned space.

B. Related Sections:

1. Division 23 Section "HVAC Piping Insulation."
2. Division 23 Section "Metal Ducts" for duct liners.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory- and field-applied if any).

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at elbows, fittings, dampers, specialties and flanges for each type of insulation.
3. Detail application of field-applied jackets.
4. Detail application at linkages of control devices.

C. Coordination Drawings: Produced in electronic format (compatible with Autocad 2008) Detailed at ¼" =1'-0" scale, double lined. Drawings shall indicate pipe layout and elevation, ductwork layout and elevation, and all equipment with manufacturers' recommended maintenance access. The following items shall be shown and coordinated with each other, using input from installers of the items involved: (Submit 3 hard copies of all documents to Architect for Review):

1. Duct installation in congested spaces, indicating coordination with general construction, building components, and other building services. Indicate proposed changes to duct layout.
2. Suspended ceiling components.
3. Structural members to which duct will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Penetrations of smoke barriers and fire-rated construction.

6. Items penetrating finished ceiling including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.
    f. Perimeter moldings.

D. Qualification Data: For qualified Installer.

E. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

F. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Division 23 Section "Hangers and Supports for HVAC Piping and Equipment."

B. Coordinate clearance requirements with duct Installer for duct insulation application. Before preparing ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.7 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

A. Flexible Elastomeric Insulation: Closed-cell, sponge or expanded rubber materials with a self adhering backing with factory applied PVC jacket. Comply with ASTM C 534, Grade 1, Type II for sheet materials.

1. Basis of Design Product: Subject to compliance with requirements, provide Armacell LLC; ArmaTuff SA or a comparable product by one of the following:

a. Aeroflex
b. K-Flex USA

B. Mineral-Fiber Blanket Insulation:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

C. Mineral-Fiber Board Insulation:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

2.2 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

B. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. PVC Jacket Adhesive: Compatible with PVC jacket.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below ambient services.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
5. Color: White.

2.4 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.
6. For indoor applications, use sealants that have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. PVC Jacket Flashing Sealants:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: White.
6. For indoor applications, use sealants that have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.5 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
4. FSP Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.

2.6 TAPES

A. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Width: 3 inches.
3. Thickness: 6.5 mils
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

B. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Width: 2 inches
3. Thickness: 6 mils
4. Adhesion: 64 ounces force/inch in width.
5. Elongation: 500 percent.
6. Tensile Strength: 18 lbf/inch in width.

2.7 SECUREMENTS

A. Bands:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Stainless Steel: ASTM A 167 or ASTM A 240/A 240M, Type 304 or Type 316; 0.015 inch thick, 3/4 inch wide with wing or closed seal.
3. Aluminum: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 3/4 inch wide with wing or closed seal.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins:

a. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
b. Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch-diameter shank, length to suit depth of insulation indicated.

2. Cupped-Head, Capacitor-Discharge-Weld Pins:

   a. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
   b. Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch-diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.

3. Insulation-Retaining Washers:

   a. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
   b. Self-locking washers formed from 0.016-inch- thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
   c. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

C. Staples:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. Outward-clinching insulation staples, nominal 3/4-inch-wide, stainless steel or Monel.

D. Wire:

1. Performance: Subject to compliance with requirements and related documents, provide products meeting a minimum performance of the following:
2. 0.080-inch nickel-copper alloy.

2.8 CORNER ANGLES

A. PVC Corner Angles: 30 mils thick, minimum 1 by 1 inch, PVC according to ASTM D 1784, Class 16354-C. White or color-coded to match adjacent surface.

B. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14.

C. Stainless-Steel Corner Angles: 0.024 inch thick, minimum 1 by 1 inch, stainless steel according to ASTM A 167 or ASTM A 240/A 240M, Type 304 or Type 316.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.

1. Verify that systems to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of ducts and fittings.

B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Keep insulation materials dry during application and finishing.

G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

H. Install insulation with least number of joints practical.

I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches O.C.
3. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches O.C.
   a. For below ambient services, apply vapor-barrier mastic over staples.
4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.

L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.4 PENETRATIONS

A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

B. Insulation Installation at Floor Penetrations:

1. Duct: For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
2. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.5 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

A. Installation shall follow the manufacturer’s installation instructions or ASTM C 1710.

B. Seal longitudinal seams and end joints with manufacturer’s recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Square and rectangular ducts and plenums:

1. Insulation with self-adhering backing:

a. Peel back release paper in 6 to 8 inch increments and line up sheet.
b. Press firmly to activate adhesive
c. Align material and continue to line up correctly, pressing firmly while slowly removing release paper.
d. Allow ¼ inch overlap for compression at butt joints.
e. All adhesive at the butt joint to seal the two sheets together.

2. Insulate duct brackets following manufacturer's written installation instructions.

3.6 INSTALLATION OF MINERAL-FIBER INSULATION

A. Blanket Insulation Installation on Ducts and Plenums: Secure with insulation pins.

1. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

a. Draw jacket tight and smooth.
b. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
c. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
d. On rectangular duct sides with dimensions 24 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 18 inches O.C.
e. On rectangular duct sides with dimensions larger than 24 inches, place pins 18 inches O.C. each way and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing. Provide pins and clip washers at 18" O.C. in the bottom of duct, minimum of 2 rows longitudinally.
f. On round ductwork at 24" diameter and greater provide pins and clip washers at 18" O.C. in both directions from the horizontal centerline of duct downward.
g. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
h. Do not overcompress insulation during installation.
i. Impale insulation over pins and attach speed washers.
j. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
k. At all ductwork with external flanges, provide an 8" (min) piece of insulation wrapped around the duct, centered on the flange and securely taped.
l. Sagging duct insulation will not be acceptable.

m. Vapor retarders should overlap a minimum of two inches at all seams and be sealed with appropriate pressure sensitive tape. When applying pressure sensitive tapes, the tape must be firmly rubbed with the proper sealing tool to make sure the closure is secured. Follow tape manufacturers recommendations.
n. For below ambient services, apply vapor-barrier mastic over staples.

2. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
3. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.

B. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

C. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

D. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

1. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch O.C. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

   a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
   b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.

2. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches O.C.
3. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
4. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches O.C.

3.7 FIELD-APPLIED JACKET INSTALLATION

A. Where FSK jackets are indicated, install as follows:

1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch-wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

B. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturer's recommended adhesive.

1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

C. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches O.C. and at end joints.

3.8 FINISHES

A. Exposed insulation shall have paintable jacket material: Paint jacket with paint system identified below and as specified in Division 09 painting Sections.

1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.

a. Finish Coat Material: Interior, flat, latex-emulsion size.

B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

C. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.

D. Do not field paint aluminum or stainless-steel jackets.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform tests and inspections.

C. Tests and Inspections:

1. Inspect ductwork, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location for each duct system defined in the "Duct Insulation Schedule, General" Article.

D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.10 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

1. Indoor, concealed supply and outdoor air.
2. Indoor, concealed return located in unconditioned space.
3. Outdoor, supply and return air.

B. Items Not Insulated:

1. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
2. Factory-insulated flexible ducts.
3. Factory-insulated plenums and casings.
4. Flexible connectors.
5. Vibration-control devices.
6. Factory-insulated access panels and doors.

3.11 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Concealed, round, supply-air, return-air and exhaust-air duct insulation shall be the following:

1. Mineral-Fiber Blanket: 2 inches thick and 0.75-lb/cu. ft. nominal density with FSK jacket.

B. Concealed, rectangular, supply-air, return-air, and exhaust-air duct insulation shall be the following:

1. Mineral-Fiber Blanket: 2 inches thick and 2-lb/cu. ft. nominal density with FSK jacket.

C. Concealed, rectangular, exhaust-air duct insulation from and between isolation dampers and penetration of building exterior shall be the following:

1. Mineral-Fiber Blanket: 3 inches thick and 2-lb/cu. ft. nominal density with FSK jacket.

D. Exposed, round, supply-air and return-air duct insulation shall be the following:

1. None.

E. Exposed, rectangular, supply-air and return-air duct insulation shall be the following:

1. None.

3.12 OUTDOOR DUCT INSULATION SCHEDULES

A. Exposed, rectangular, supply and return air ductwork.

1. Flexible elastomeric, R-12, minimum 2” thick with self-adhesive and factory applied UV Resistant PVC jacket.

END OF SECTION 23 0713

SECTION 23 3113 – METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, along with Sections 23 0510 & 23 0511 apply to this Section.

1.2 SUMMARY

A. This Section includes metal, rectangular ducts and fittings for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 2- to plus 10-inch wg.

B. See Division 23 Section “Duct Accessories” for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 SUBMITTALS

A. Shop Drawings: Show fabrication and installation details for metal ducts.

1. Penetrations through fire-rated and other partitions.
2. Duct accessories, including access doors and panels.

1.4 QUALITY ASSURANCE

A. NFPA Compliance:"

1. NFPA 90A, “Installation of Air Conditioning and Ventilating Systems.”
2. NFPA 90B, “Installation of Warm Air Heating and Air Conditioning Systems.”
3. NFPA 96, “Ventilation Control and Fire Protection of Commercial Cooking Operation.”
4. “Fire Protection Code of New York State.”
5. NFPA 69 - Standard on Explosion Prevention Systems.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SHEET METAL MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards – Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view. Sheet metal in the open exposed manufacturing areas shall be galvaneal to accept painting by the general contractor.

C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.

D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

E. Aluminum ductwork for exhaust systems associated with Natatorium, Locker Rooms, Toilet Rooms and high humidity spaces. Include aluminum supports

2.3 SEALANT MATERIALS

A. Joint and Seam Tape: 2 inches wide; glass-fiber-reinforced fabric.

B. Tape Sealing System: Woven-fiber tape impregnated with gypsum mineral compound and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.

C. Water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for Class 1 ducts.

D. Solvent-Based Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant formulated with a minimum of 75 percent solids.

E. Flanged Joint Mastic: One-part, acid-curing, silicone, elastomeric joint sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.

F. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

2.4 HANGERS AND SUPPORTS

A. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
2. Exception: Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.

B. Hanger Materials: Match duct materials.

1. Hangers Installed in Corrosive Atmospheres: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards – Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.

C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

D. Trapeze and Riser Supports: Galvanized-steel shapes and plates complying with ASTM A 36/A 36M.

2.5 RECTANGULAR DUCT FABRICATION

A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards – Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.

1. Lengths: Fabricate rectangular ducts in lengths appropriated to reinforcement and rigidity class required for pressure class.
2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards – Metal and Flexible."

B. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.

1. Manufacturers:

a. Ductmate Industries, Inc.
b. Nexus, Inc.
c. Ward Industries, Inc.

C. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards – Metal and Flexible, Figure 1-4, using corner, bolt, cleat, and gasket details.

1. Manufacturers:

a. Ductmate Industries, Inc.
b. Lockformer.

2. Duct Size: Maximum 30 inches wide and up to 2-inch wg pressure class.
3. Longitudinal Seams: Pittsburgh lock sealed with non-curing polymer sealant.

D. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches and larger and 0.0359 inch thick or less, with more than 10 sq. ft. of non-braced panel area unless ducts are lined.

2.6 ROUND DUCT FABRICATION

A. General

1. All round supply, return and exhaust ductwork shall be Lindlab Safe® as manufactured by Lindlab, Inc. (800) 797-7476. The duct system shall consist of fittings that are factory fitted with a sealing gasket and spiral duct which, when installed according to the manufacturer's instructions, will seal the duct joints without the use of external duct sealer.
2. Alternate Manufacturers: Tambe Sheetmetal, MaGill.

B. Materials

1. Galvanized steel conforming to ASTM Standards A653 and A924 conforming to the latest SMACNA's Duct Construction Standards. Use galvaneal where exposed and painted (by G.C.).
2. When specified on the contract documents, stainless steel type 304L or type 316L in accordance with ASTM A-240 shall be provided with surface finish 2B.
3. When specified on the contract documents an epoxy based powder coating with an average coating thickness of 4 mils both inside and outside of the spiral pipe and fittings. Coating to meet or exceed 1,000 hours of salt spray test in accordance with ASTM B117-97.
4. EPDM sealing gasket to conform to ASTM E84-91A and NFPA 90A flame spread and smoke developed ratings of 25/50.
5. Ductwork and all components associated with the Natatorium shall be Type 316 stainless steel.

C. Construction

1. Unless otherwise noted, all duct and fittings shall be constructed per SMACNA's latest Duct Construction Standards for +10 inch water gauge pressure.
2. Duct is of spiral lockseam construction with a mechanically formed seam locking indentation evenly spaced along the spiral seam. All spiral duct larger than 7 inch diameter incorporates multiple corrugations between the spiral seams.
3. Fittings:

    a. All fitting ends shall come factory equipped with a double lipped, U-profile, EPDM rubber gasket. Gasket shall be manufactured to gauge and flexibility so as to insure that system will meet all of the performance criteria set forth in the manufacturer's literature.
    b. The gasket is to be mechanically attached to the fitting using a spot welded stainless steel metal band located in a groove at the end of the fitting.
    c. All fitting ends shall be calibrated to manufacturer's published dimensional tolerance standard and associated spiral duct.
    d. All fitting ends shall have rolled over edges for added strength and rigidity.
    e. All fitting ends 26 inch and larger shall have an extended and tapered slip dimension to facilitate assembly.
    f. All elbows from 3" to 12" diameter shall be 2 piece die stamped and continuously stitch welded. All elbows 14" diameter and larger shall be standing seam gore lock construction and internally sealed.
    g. All fittings that are either spot-welded or button punched construction shall be internally sealed.

4. All volume and balancing dampers shall be Lindlab Safe® type DRU, DSU or DTU as specified on all the contract documents. Damper shall be fitting sized to slip into the spiral duct with a double lipped, U-profile, EPDM rubber gasket. Damper shall have the following features:

    a. Locking quadrant with blade position indicator.
    b. 2" sheet metal insulation stand-off.
    c. Integral shaft/blade assembly.
    d. Shaft mounted, load bearing bushings.
    e. Gasketed shaft penetrations to minimize leakage.

D. Performance

1. Manufacturer shall provide the owner a written 10 year duct system performance warranty to meet SMACNA's Leakage Class 3 requirements at the system design static pressure as indicated on the contract documents, however, not to exceed +10 water gauge. Any joints or connections installed without self-sealing gasketed connection shall be supplied with a factory-installed flange and field sealed to meet leakage Class 3 requirements. The duct system must be field pressure tested by an independent agency to meet Leakage Class 3; this testing will not be required with Lindlab Safe® products

E. Joint Sealing

1. All joints must be sealed by the installer during the installation process. The type of sealant used as well as the method and level of application should be as directed by the

F. All new pool ductwork shall match the existing ductwork.

2.7 DUCT LINER

A. Scope

1. The work covered by this specification consists of furnishing all labor, equipment, materials and accessories, and performing all operations required for the correct installation of flexible closed cell elastomeric insulation for duct applications. The installation guidelines outlined in this document are K-Flex USA recommendations and are intended to ensure a successful installation. Any variations other than what is supported by this document may compromise the purpose and design of the insulation.

B. References

1. ASTM C177 Thermal Conductivity (k) by Guarded Hot Plate Apparatus
2. ASTM C335 Thermal Conductivity (k) for Pipe Insulation
3. ASTM C411 Upper Temperature Limit
4. ASTM C518 Thermal Conductivity (k) by Heat Flow Meter Apparatus
5. ASTM C534 Standard Specifications for Preformed Flexible Elastomeric Cellular Thermal Insulation
6. ASTM C1534 Flexible Polymeric Foam Sheet Insulation Used as a Liner for Duct Systems
7. ASTM C423 Sound Absorption and Sound Absorption Coefficients, Reverberation Room Method
8. ASTM D1622 Density

9. ASTM D3575 Density
10. ASTM E84 Surface Burning Characteristics
11. ASTM E96 Water Vapor Permeability
12. SMACNA HVAC Duct Construction Standards – Metal and Flexible

C. Quality Assurance

1. Insulation materials shall be manufactured under a strict quality control program assuring quality product delivered to the job sit. Insulation material that has become damaged shall not be installed.
2. Workmanship: All insulation shall be installed by a qualified applicator and applied in accordance with the manufacturer's recommendations.

    a. All work shall comply with all applicable federal, state and local codes and laws. This shall include, but shall not be limited to, the Occupational Safety and Health Act.
    b. All work shall conform to accepted industry and trade standards for commercial and industrial insulation.
    c. Surfaces to be insulated shall be free of dirt, scale, moisture, oil and grease.

D. Delivery and Storage of Materials

1. Deliver all materials to the job site and protect the insulation from dirt, water, chemical and mechanical damage before, during and after installation. Damaged insulation shall not be installed and it shall be removed from the project site.
2. Deliver insulation, and where applicable, coverings, cements, adhesives, coatings, etc. to the site in factory supplied containers with the manufacturer's stamp or label affixed showing warning statement, name of manufacturer and brand.
3. Storage and transport of materials should utilize the manufacturer's original shipment packaging, or alternative acceptable packaging. Damage to insulation may result from improper packaging.

E. K-Flex Gray^{TM} Duct Liner

1. Products must be manufactured by K-Flex USA and identified on their container and/or packaging with one of the following trade names: K-Flex Gray Duct Liner, K-Flex Gray Duct Liner with PSA.
2. Any material submitted claiming to be a similar, like, or equal must demonstrate (meet or exceed) the same physical characteristics as K-Flex USA manufactured insulation (i.e., flexible, non-porous, and non-fibrous). In addition, materials must meet the following criteria:

    a. Material shall have a density ranging from 3 to 6 lb/ft^3 (ASTM D1622, ASTM D3575).
    b. Material shall have a maximum thermal conductivity (k) of 0.25 Btu-in/hr-ft^2-°F @ 75°F mean temperature (ASTM C518, ASTM C177).
    c. Material shall have a minimum R-value of 4.2 at a nominal 1" thickness.
    d. Material shall have a maximum Water Vapor Transmission rate of 0.06 Perm-in. (ASTM E96, Desiccant Method).
    e. Material shall have a minimum sound absorption coefficient (NRC) of 0.50 at a nominal 1" thickness (ASTM C423).

f. Material shall have a flame spread rating not greater than 25 and a smoke developed rating not greater than 50 when tested in accordance with ASTM E84 at a thickness required to attain a minimum 4.2 R-value.
g. Material shall be GREENGUARD Certified, meeting “Children and Schools” classification requirements for VOC and formaldehyde content.
h. Materials shall be GREENGUARD Listed as “Mold Resistant” for resistance to mold growth.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install round ducts in maximum practical lengths.

D. Install ducts with fewest possible joints.

E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Air Duct Accessories" for fire and smoke dampers.

L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

3.2 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.

D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

E. Repair or replace damaged sections and finished work that does not comply with these requirements.

F. Static-Pressure Classes: Unless otherwise indicated, construct ducts according to the following:

1. Supply Ducts: 2-inch wg.
2. Supply Ducts (before Air Terminal Units): 2-inch wg.
3. Supply Ducts (after Air Terminal Units): 1-inch wg.
4. Supply Ducts (in Mechanical Equipment Rooms): 2-inch wg.
5. Return Ducts (Negative Pressure): 1-inch wg.
6. Exhaust Ducts (Negative Pressure): 2-inch wg.

3.3 SEAM AND JOINT SEALING

A. Seal duct seams and joints according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for duct pressure class indicated.

1. For pressure classes lower than 2-inch wg, seal transverse joints.

B. Seal ducts before external insulation is applied.

3.4 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
5. Do not use powder-actuated concrete fasteners for seismic restraints.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1 (Table 5-1M), "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.5 CONNECTIONS

A. Make connections to equipment with flexible connectors according to Division 23 Section "Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.6 PAINTING

A. Paint interior of metal ducts that are visible through registers and grilles and that do not have duct liner. Apply one coat of flat, black, latex paint over a compatible galvanized-steel primer. Paint materials and application requirements are specified in Division 09 painting Sections.

3.7 DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel except as otherwise indicated and as follows:

B. Supply, Return, Exhaust, and Outside Air:

1. Concealed Ductwork:

a. Pressure Class: Positive 2-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 24.
d. SMACNA Leakage Class for Round: 24

2. Exterior Ductwork:

a. Pressure Class: Positive 2-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 24.
d. SMACNA Leakage Class for Round: 24

C. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel or carbon steel coated with zinc-chromate primer.

D. Liner:

1. Supply Air Ducts specifically identified with an “L” after the duct size on drawings:

a. Flexible elastomeric noise reducing duct liner: 1 inches thick

E. Elbow Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

a. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

2. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."

a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

1) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90-degree elbow.

b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped.
c. Round Elbows, 14 Inches and Larger in Diameter: Welded.

F. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree lateral or 90-degree with 45-degree entry.

2. Round: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

a. Velocity 1000 fpm or Lower: 90-degree tap.
b. Velocity 1000 to 1500 fpm: Conical tap.
c. Velocity 2000 fpm or Less: 45-degree lateral or 90-degree with 45-degree entry.

END OF SECTION 23 3113

SECTION 23 3300 – DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Backdraft dampers.
2. Volume dampers.
3. Turning vanes.
4. Duct-mounting access doors.
5. Flexible connectors.
6. Flexible ducts.
7. Duct accessory hardware.

B. See Division 26 Section "Fire Alarm Systems, modification and Expansion" for duct-mounting fire and smoke detectors.

C. See Division 23 Section "Facilities Management System" for electric and pneumatic damper actuators.

1.3 SUBMITTALS

A. Product Data: For the following:

1. Backdraft dampers.
2. Volume dampers.
3. Turning vanes.
4. Duct-mounting access doors.
5. Flexible connectors.
6. Flexible ducts.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Special fittings.
2. Manual-volume damper installations.
3. Fire-damper, smoke-damper, and combination fire- and smoke-damper installations, including sleeves and duct-mounting access doors.
4. Wiring Diagrams: Power, signal, and control wiring.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SHEET METAL MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.

B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

C. Stainless Steel: ASTM A 480/A 480M.

D. Aluminum Sheets: ASTM B 209, alloy 3003, temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.

E. Extruded Aluminum: ASTM B 221, alloy 6063, temper T6.

F. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

G. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.3 BACKDRAFT DAMPERS

A. Manufacturers:

1. Air Balance, Inc.
2. American Warming and Ventilating.
3. CESCO Products.
4. Duro Dyne Corp.
5. Greenheck.
6. Penn Ventilation Company, Inc.
7. Prefco Products, Inc.
8. Ruskin Company.
9. Vent Products Company, Inc.

B. Description: Multiple-blade, parallel action gravity balanced, with blades of maximum 6-inch width, with sealed edges, assembled in rattle-free manner with 90-degree stop, steel ball bearings, and axles; adjustment device to permit setting for varying differential static pressure.

C. Frame: 0.052-inch thick, galvanized sheet steel, with welded corners and mounting flange.

D. Blades: 0.050-inch thick aluminum sheet.

E. Blade Seals: Felt.

F. Blade Axles: Galvanized steel.

G. Tie Bars and Brackets: Galvanized steel.

H. Return Spring: Adjustable tension.

2.4 VOLUME DAMPERS

A. Manufacturers:

1. Air Balance, Inc.
2. American Warming and Ventilating.
3. Flexmaster U.S.A., Inc.
4. McGill AirFlow Corporation.
5. METALAIRE, Inc.
6. Nailor Industries Inc.
7. Penn Ventilation Company, Inc.
8. Ruskin Company.
9. Vent Products Company, Inc.

B. General Description: Factory fabricated, with required hardware and accessories. Stiffen damper blades for stability. Include locking device to hold single-blade dampers in a fixed position without vibration. Close duct penetrations for damper components to seal duct consistent with pressure class.

C. Standard Volume Dampers: Multiple- or single-blade, parallel- or opposed-blade design as indicated, standard leakage rating, with linkage outside airstream, and suitable for horizontal or vertical applications.

1. Steel Frames: Hat-shaped, galvanized sheet steel channels, minimum of 0.064 inch thick, with mitered and welded corners; frames with flanges where indicated for attaching to walls and flangeless frames where indicated for installing in ducts.
2. Roll-Formed Steel Blades: 0.064-inch thick, galvanized sheet steel.
3. Blade Axles: Galvanized steel.
4. Bearings: Oil-impregnated bronze.
5. Tie Bars and Brackets: Galvanized steel.

D. Jackshaft: 1-inch diameter, galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.

1. Length and Number of Mountings: Appropriate to connect linkage of each damper in multiple-damper assembly.

E. Damper Hardware: Zinc-plated, die-cast core with dial and handle made of 3/32-inch thick zinc-plated steel, and a 3/4-inch exagon locking nut. Include center hole to suit damper operating-rod size. Include elevated platform for insulated duct mounting.

2.5 TURNING VANES

A. Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for vanes and vane runners. Vane runners shall automatically align vanes.

B. Manufactured Turning Vanes: Fabricate 1-1/2-inch wide, double-vane, curved blades of galvanized sheet steel set 3/4 inch o.c.; support with bars perpendicular to blades set 2 inches o.c.; and set into vane runners suitable for duct mounting.

1. Manufacturers:

a. Ductmate Industries, Inc.
b. Duro Dyne Corp.
c. METALAIRE, Inc.
d. Ward Industries, Inc.

C. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.

2.6 DUCT-MOUNTING ACCESS DOORS

A. General Description: Fabricate doors airtight and suitable for duct pressure class.

B. Door: Double wall, duct mounting, and rectangular; fabricated of galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class. Include vision panel where indicated. Include 1-by-1-inch butt or piano hinge and cam latches.

1. Manufacturers:

a. American Warming and Ventilating.
b. CESCO Products.
c. Ductmate Industries, Inc.
d. Flexmaster U.S.A., Inc.
e. Greenheck.
f. McGill AirFlow Corporation.
g. Nailor Industries Inc.
h. Ventfabrics, Inc.
i. Ward Industries, Inc.

2. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
3. Provide number of hinges and locks as follows:

a. Less Than 12 Inches Square: Secure with two sash locks.
b. Up to 18 Inches Square: Two hinges and two sash locks.
c. Up to 24 by 48 Inches: Three hinges and two compression latches with outside and inside handles.
d. Sizes 24 by 48 Inches and Larger: One additional hinge.

C. Door: Double wall, duct mounting, and round; fabricated of galvanized sheet metal with insulation fill and 1-inch thickness. Include cam latches.

1. Manufacturers:

a. Ductmate Industries, Inc.
b. Flexmaster U.S.A., Inc.

2. Frame: Galvanized sheet steel, with spin-in notched frame.

D. Seal around frame attachment to duct and door to frame with neoprene or foam rubber.

E. Insulation: 1-inch thick, fibrous-glass or polystyrene-foam board.

2.7 FLEXIBLE CONNECTORS

A. Manufacturers:

1. Ductmate Industries, Inc.
2. Duro Dyne Corp.
3. Ventfabrics, Inc.
4. Ward Industries, Inc.

B. General Description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.

C. Flexible Connector Fabric: Glass fabric double coated with neoprene.

1. Minimum Weight: 26 oz./sq. yd.
2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
3. Service Temperature: Minus 40 to plus 200 deg F.

2.8 FLEXIBLE DUCTS

A. Manufacturers:

1. Flexmaster U.S.A., Inc.
2. Hart & Cooley, Inc.
3. McGill AirFlow Corporation.

B. Non-insulated-Duct Connectors: UL 181, Class 1, multiple layers of aluminum laminate supported by helically wound, spring-steel wire.

1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2. Maximum Air Velocity: 4000 fpm.
3. Temperature Range: Minus 20 to plus 210 deg F.

C. Insulated-Duct Connectors: UL 181, Class 1, 2-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; polyethylene vapor barrier film.

1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2. Maximum Air Velocity: 4000 fpm.
3. Temperature Range: Minus 10 to plus 160 deg F.

D. Flexible Duct Clamps: Nylon strap, in sizes 3 through 18 inches to suit duct size.

2.9 DUCT ACCESSORY HARDWARE

A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct insulation thickness.

B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.

B. Provide duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.

C. Install backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.

D. Install volume dampers in ducts with liner; avoid damage to and erosion of duct liner.

E. Provide balancing dampers at points on supply, return, and exhaust systems where branches lead from larger ducts as required for air balancing. Install at a minimum of two duct widths from branch takeoff.

F. Provide test holes at fan inlets and outlets and elsewhere as indicated.

G. Install fire and smoke dampers, with fusible links, according to manufacturer's UL-approved written instructions.

H. Install duct access doors to allow for inspecting, adjusting, and maintaining accessories and terminal units as follows:

1. On both sides of duct coils.
2. Downstream from volume dampers and equipment.
3. Adjacent to fire dampers, providing access to reset or reinstall fusible links.
4. To interior of ducts for cleaning; before and after each change in direction, at maximum 50-foot spacing.
5. On sides of ducts where adequate clearance is available.

I. Install the following sizes for duct-mounting, rectangular access doors:

1. One-Hand or Inspection Access: 8 by 5 inches.
2. Two-Hand Access: 12 by 6 inches.
3. Head and Hand Access: 18 by 10 inches.
4. Head and Shoulders Access: 21 by 14 inches.
5. Body Access: 25 by 14 inches.
6. Body Plus Ladder Access: 25 by 17 inches.

J. Install the following sizes for duct-mounting, round access doors:

1. One-Hand or Inspection Access: 8 inches in diameter.
2. Two-Hand Access: 10 inches in diameter.
3. Head and Hand Access: 12 inches in diameter.
4. Head and Shoulders Access: 18 inches in diameter.
5. Body Access: 24 inches in diameter.

K. Label access doors according to Division 23 Section "Mechanical Identification."

L. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators.

M. For fans developing static pressures of 5-inch wg and higher, cover flexible connectors with loaded vinyl sheet held in place with metal straps.

N. Connect terminal units to supply ducts with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.

O. Connect diffusers or light troffer boots to low pressure ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.

P. Connect flexible ducts to metal ducts with adhesive plus sheet metal screws, maximum 6’-0” in length, pulled tight. Do not use flexible ducts for supply elbows or on exhaust or return systems. Use 90° hard pipe, long radius elbow @ each diffuser.

Q. Install all control devices (dampers, airflow stations, static pressure sensors) provided by the temperature control contractor.

R. Install duct test holes where indicated and required for testing and balancing purposes.

3.2 ADJUSTING

A. Adjust duct accessories for proper settings.

B. Adjust fire and smoke dampers for proper action.

C. Final positioning of manual-volume damper is specified in Division 23 Section “Testing, Adjusting, and Balancing.”

END OF SECTION 23 3300

SECTION 23 3713 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary General Conditions and other Division 01 Specification Sections, apply to this section.

1.2 SUMMARY

A. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.

1.3 SUBMITTALS

A. Product Data: For each product indicated, include the following:

1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
2. Diffuser, Register, and Grille Schedule: Indicate Drawing designation, room location, quantity, model number, size, and accessories furnished.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 GRILLES AND REGISTERS

A. Adjustable Bar Register:

1. Products:

a. Anemostat, a Mestek Company.
b. Price Industries.
c. Titus.
d. Tuttle & Bailey.

2. Manufacturers:

    a. Anemostat a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

3. Material: Steel, Aluminum or 304 Stainless Steel.
4. Finish: Baked enamel, color selected by Architect.
5. Face Blade Arrangement: Adjustable horizontal, adjustable vertical spaced 3/4 inch apart.
6. Rear Blade Arrangement: Adjustable vertical spaced 3/4 inch apart.
7. Frame: 1-1/4 inches wide.
8. Mounting: Countersunk screw.
9. Damper Type: Adjustable opposed-blade assembly.

B. Fixed Face Register:

1. Products:

    a. Aneomostat a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

2. Manufacturers:

    a. Anemostat a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

3. Material: Steel, Aluminum or 304 Stainless Steel.
4. Finish: Baked enamel, color selected by Architect.
5. Face Arrangement: 1/2-by-1/2-by-1/2-inch grid core.
6. Frame: 1-1/4 inches wide.
7. Mounting: Countersunk screw.

2.3 CEILING DIFFUSER OUTLETS

A. Round Ceiling Diffuser:

1. Products:

    a. Anemostat, a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

2. Manufacturers:

    a. Anemostat; a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

3. Material: Steel or Aluminum.
4. Finish: Baked enamel, color selected by Architect.
5. Face Style: Four cone.
6. Pattern: Fully adjustable.
7. Dampers: Combination damper and grid.
8. Accessories:

    a. Equaling grid.

B. Rectangular and Square Ceiling Diffusers:

1. Products:

    a. Anemostat, a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

2. Manufacturers:

    a. Anemostat a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

3. Material: Steel.
4. Finish: Baked enamel, color selected by Architect.
5. Face Size: 24 by 24 inches; 12 by 12 inches.
6. Face Style: Four cone.
7. Mounting: Surface, T-bar.
8. Pattern: Adjustable.
9. Dampers: Combination damper and grid.
10. Accessories:

    a. Equaling grid.

C. Louver Face Diffuser:

1. Products:

    a. Anemostat, a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

2. Manufacturers:

    a. Anemostat; a Mestek Company.
    b. Price Industries.
    c. Titus.
    d. Tuttle & Bailey.

3. Material: Steel.
4. Finish: Baked enamel, color selected by Architect.
5. Mounting: Surface with beveled frame, T-bar.
6. Pattern: One-way, Two-way, Two-way corner, Three-way, Four-way core style.
7. Dampers: As shown.
8. Accessories:

    a. Square to round neck adaptor.
    b. Adjustable pattern vanes.

2.4 SOURCE QUALITY CONTROL

A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install diffusers, registers, and grilles level and plumb.

B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.2 ADJUSTING

A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 23 3713

SECTION 260500 - BASIC ELECTRIC MATERIALS AND METHODS

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. Supporting devices for electrical components.
2. Electrical identification.
3. Concrete equipment bases.
4. Electrical demolition.
5. Cutting and patching for electrical construction.
6. Touchup painting.

B. Related sections include the following:

1. Division 26, Section 260529 “Hangers and Supports for Electrical Systems.”
2. Division 26, Section 260553 “Identification for Electrical Systems.”

1.3 SUBMITTALS

A. Shop Drawings: Dimensioned plans and sections or elevation layouts of electricity-metering equipment.

B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

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. Contractor shall provide U.L. labels as required for all new and existing equipment which will be reworked or modified from its original condition under this contract.

C. Comply with NFPA 70.

1.5 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Division 08 Section "Access Doors."

D. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

E. Where electrical identification markings and devices will be concealed by acoustical ceilings and similar finishes, coordinate installation of these items before ceiling installation.

PART 2 - PRODUCTS

2.1 SUPPORTING DEVICES

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

C. Slotted-Steel Channel Supports: Comply with Division 05 Section "Metal Fabrications" for slotted channel framing.

1. Channel Thickness: Selected to suit structural loading.
2. Fittings and Accessories: Products of the same manufacturer as channel supports.

D. Raceway Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers. Perforated hangers or wire-tie supports are not acceptable. All hangers and supports shall have corrosion resistant finish.

E. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

F. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

G. Expansion Anchors: Carbon-steel wedge or sleeve type.

H. Toggle Bolts: All-steel springhead type.

2.2 ELECTRICAL IDENTIFICATION

A. Identification Devices: A single type of identification product for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Raceway: Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway and cable size.

1. Type: Pretensioned, wraparound plastic sleeves. Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the item it identifies.
2. Type: Preprinted, flexible, self-adhesive, vinyl. Legend is overlaminated with a clear, weather- and chemical-resistant coating.
3. Color: Black letters on orange background.
4. Legend: Indicates voltage.

C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick.

D. Underground Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:

1. Not less than 6 inches wide by 4 mils thick.
2. Compounded for permanent direct-burial service.
3. Embedded continuous metallic strip or core.
4. Printed legend that indicates type of underground line.

E. Tape Markers for Wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.

G. Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness for signs up to 20 sq. in. and 1/8-inch minimum thickness for larger sizes. Engraved legend in black letters on white background.

H. Interior Warning and Caution Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145. Preprinted, aluminum, baked-enamel-finish signs, punched or drilled for mechanical fasteners, with colors, legend, and size appropriate to the application.

I. Exterior Warning and Caution Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch, galvanized-steel backing, with colors, legend, and size appropriate to the application. 1/4-inch grommets in corners for mounting.

J. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.3 CONCRETE BASES

A. Concrete Forms and Reinforcement Materials: As specified in Division 03 Section "Cast-in-Place Concrete."

B. Concrete: 3000-psi, 28-day compressive strength as specified in Division 03 Section "Cast-in-Place Concrete."

2.4 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

PART 3 - EXECUTION

3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.

B. Dry Locations: Steel materials.

C. Support Clamps for PVC Raceways: Click-type clamp system.

D. Selection of Supports: Comply with manufacturer's written instructions.

E. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb design load.

3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.

B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.

C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.

D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.

F. Install 1/4-inch-diameter or larger threaded steel hanger rods, unless otherwise indicated.

G. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

H. Simultaneously install vertical conductor supports with conductors.

I. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.

J. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength.

K. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

L. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:

1. Wood: Fasten with wood screws or screw-type nails.
2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
3. New Concrete: Concrete inserts with machine screws and bolts.
4. Existing Concrete: Expansion bolts.
5. Steel: Welded threaded studs or spring-tension clamps on steel.

    a. Field Welding: Comply with AWS D1.1.

6. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items.
7. Light Steel: Sheet-metal screws.
8. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.4 IDENTIFICATION MATERIALS AND DEVICES

A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.

C. Self-Adhesive Identification Products: Clean surfaces before applying.

D. Identify raceways and cables with color banding as follows:

1. Bands: Pretensioned, snap-around, colored plastic sleeves or colored adhesive marking tape. Make each color band 2 inches wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.
2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
3. Colors: As follows:

    a. Fire Alarm System: Red.
    b. Security System: Blue and yellow.
    c. Telecommunication System: Green and yellow.

E. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.

F. Tag and label feeder and branch circuits. Identify source and circuit numbers including ground conductors in each cabinet, pull and junction box, outlet box. Color-coding may be used for voltage and phase identification.

G. Install continuous underground plastic markers during trench backfilling, for exterior underground power, control, signal, and communication lines located directly above power and communication lines. Locate 6 to 8 inches below finished grade. If width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches, overall, use a single line marker.

H. Color-code 208/120-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:

1. Phase A: Black.
2. Phase B: Red.
3. Phase C: Blue.

I. Color-code 480/277-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:

1. Phase A: Yellow.
2. Phase B: Brown.
3. Phase C: Orange.

J. Install warning, caution, and instruction signs where required to comply with 29 CFR, Chapter XVII, Part 1910.145, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.

K. Install engraved-laminated emergency-operating signs with white letters on red background with minimum 3/8-inch-high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

3.5 FIRESTOPPING

A. Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly. Install through-penetration firestop systems to comply with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for firestop systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contract 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.

3.6 CONCRETE BASES

A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger, in both directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified in Division 03 Section "Cast-in-Place Concrete."

3.7 DEMOLITION

A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.

C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.

D. Remove demolished material from Project site.

E. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

3.8 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.9 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:

1. Supporting devices for electrical components.
2. Electrical identification.
3. Electricity-metering components.
4. Concrete bases.
5. Cutting and patching for electrical construction.
6. Touchup painting.

3.10 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint. Paint materials and application requirements are specified in Division 09 Section "Painting."

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.11 CLEANING AND PROTECTION

A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

3.12 TRAINING

A. Prior to acceptance of all systems and equipment, the contractor, along with his subcontractors and vendors, shall instruct and train the owner's representatives on the operation and maintenance of all aspects of the new systems. Owner shall be given ample time to schedule training dates and personnel. Training sessions shall be given at intervals of 4 hours long. Training literature for startup procedures and maintenance shall be included in the O&M Manuals.

3.13 SYSTEM COMMISSIONING AND TESTING

A. Prior to completion and acceptance of new or renovated areas, all electrical installations and systems shall be tested, balanced and operated to demonstrate to the Owner or his representative and Architect/Engineer that the installation and performance of each electrical system conforms to the requirements of the drawings and specifications.

B. A written report of performance tests on the specific electrical systems and equipment shall be supplied to the Owner. Such tests shall show compliance with the governing codes regulations.

C. Engage a certified International Electrical Testing Association (NETA) inspector to inspect and certify compliance upon completion of work. All electrical installations and products used on this project shall comply with the National Electrical Manufacturer's Association (NEMA) and National Electrical Code (NEC).

END OF SECTION 26 0500

SECTION 260511 – MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK INCLUDED

A. Work included in this section: Materials, equipment, fabrication, installation, and tests in conformity with applicable codes and authorities having jurisdiction for the following:

1. Motors.
2. Factory-wired equipment (FEW).
3. Factory-wired control panels (FWCP).
4. Motor controllers where provided as part of mechanical equipment.
5. Motor controllers where supplied under Division 23 – Mechanical Work.
6. Disconnects and safety switches for mechanical equipment.
7. Fuses for equipment provided, and starters and disconnect switches.

1.3 REFERENCE STANDARDS

A. Published specification standards, tests, or recommended methods of trade, industry or governmental organization as apply to work in this section where cited below:

1. ANSI - American National Standards Institute.
2. NEMA – National Electrical Manufacturer’s Association.
3. IEEE – Institute of Electrical and Electronic Engineers.

1.4 CODE COMPLIANCE

A. All work shall be performed in compliance with the following:

1. Building Code of New York State. (2020)
2. Mechanical Code of New York State.(2020)
3. Fire Code of New York State.(2020)
4. Energy Conservation Construction Code of New York State.(2020)
5. National Electrical Code (NEC).
6. Occupational Safety and Health Administration (OSHA).
7. Local Codes and Ordinances of the Town of Andover and Allegany County.
8. Life Safety Codes, NFPA 101.
9. New York Board of Fire Underwriters.
10. Combustion Toxicity Amendment to the New York State Uniform Fire Prevention and Building Code.
11. Underwriters Laboratories.
12. ASHRAE 15 Refrigeration Code and Recommendations.

1.5 QUALITY ASSURANCE

A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.

B. Supply all equipment and accessories new and free from defects.

C. Supply all equipment and accessories in compliance with the applicable standards listed in Article 1.04 of this Section and with all applicable National, State and local codes.

D. All items of a given type shall be the products of the same manufacturer.

1.6 DIVISION OF WORK

A. This section delineates the work required to be performed by contractors under Divisions 23 and 26.

1.7 WORK REQUIRED UNDER DIVISION 23

A. Furnish motors, manual and combination starters, contactors, and other electrical devices required for equipment furnished under Division 23. All manual and combination starters, disconnect switches, electrical thermostats shall be installed by the Electrical Contractor, under Division 26. Combination starter/disconnect shall be similar to Allen Bradley 512 with properly sized control transformers. Single phase starting shall be thermal switches with pilot light and properly sized heaters.

B. Install all items in piping and ductwork such as aquastats, ductstats, etc.

C. All external wiring of equipment, all temperature control wiring, external wiring of control circuits of magnetic starters, interlocking wiring and mounting of control devices, etc., shall be included and provided under Division 23. All external wiring shall be in conduit (unless specifically shown to be provided by the Electrical Contractor).

D. Wiring required under Division 23 shall comply with the specifications as described in Division 26.

E. Provide disconnect switches or safety switches for equipment. (Unless specifically shown to be provided by the Electrical Contractor, starters and disconnects shown on the electrical drawings are for installation and do not require the Electrical Contractor to supply units.)

1.8 WORK REQUIRED UNDER DIVISION 26

A. The Electrical Contractor, under Division 26, shall provide all power wiring and conduit to junction box, to disconnect switch on unit, to motor starters and contactors, and between motor starters and contactors to motor or other load. Electrical Contractor shall be responsible for proper direction of rotation for all three-phase equipment. The Electrical Contractor shall mount all starters, disconnects.

B. The Electrical Contractor shall provide disconnect switches (sized as required) or thermal switches with pilot lights, on all mechanical equipment not furnished by Division 23 and as required by the National Electrical code, when equipment is not supplied with same.

C. The Electrical Contractor shall provide single – or three-phase AC power, as required, to all mechanical equipment provided and installed by Division 23.

D. All control devices (thermostats, etc.) required for mechanical equipment operation shall be provided, installed, and wired by the respective Mechanical Contractor.

E. The Electrical Contractor shall disconnect all existing power connections to mechanical equipment prior to removal of equipment by others.

F. The Electrical Contractor shall not purchase materials or initiate roughing work of electrical connections to equipment provided by other Contractors until receipt of reviewed submittals and coordination is completed.

1.9 STORAGE

A. It shall be the contractor's responsibility to provide secure storage of new equipment and contractor's belongings at the construction site. Any equipment lost or damaged prior to acceptance by the owner shall be replaced with new equipment at no cost to the owner.

1.10 RECORD DRAWINGS AND MAINTENANCE MANUALS

A. Refer to Division 01.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Motors:

1. Baldor
2. Siemens
3. General Electric
4. Reliance

B. Motor Controllers and Disconnects:

1. Square D
2. Allen-Bradley
3. Cutler-Hammer
4. General Electric

2.2 MOTORS

A. General: Motors shall conform to NEMA, IEEE, ANSI C50, and AIEE Standards.

B. For motors less than 3/4 HP, furnish squirrel cage induction motors, capacitor-start of split-phase designed to operate on single phase, 60 hertz, 120-volt circuit (NEMA standard motor voltage 115V) with built-in overload protection.

C. For motors 3/4HP and larger, furnish squirrel cage induction or wound rotor induction motors, designed to operate on 3-phase, 60-HZ, 460-volt circuit (NEMA Type "B": Insulation class, continuous duty standard motor voltage 460V), unless otherwise specified on drawings.

D. Each motor shall not be overloaded by the apparatus it operates under any condition of operation. Where a minimum horsepower capacity is listed, furnish a motor larger than the minimum, if required in any particular case. Pay any additional cost due to necessary increase in feeder sizes, circuit breaker sizes, etc., provided under the Electric Contract.

E. All 3-phase motors shall be built for continuous operation on stated voltage, plus or minus 10% volts.

F. Belt-connected motors. Foundation slide base and shaft as required for aligning pulleys.

G. Service Factor: The "Service Factor" is a multiplier, which applied to the normal horsepower rating indicates a permissible loading within the accepted safe limits of temperature rise for the insulation. Service factor for each motor shall conform to NEMA standards. Service factor for drip-proof enclosures is 1.15.

H. Temperature and Insulation System Class: Conform to NEMA standards for Class B or better. Insulation system rated at 40ºC maximum ambient temperature.

I. Bearings: Equip motors 1/2 HP and larger with ball or roller bearings with pressure grease lubrication.

J. Speed: As required and approved to meet the requirements of the service for which they are intended.

K. Motor Housing: Conform to NEMA requirements for a drip-proof machine unless otherwise specified or indicated on the drawings.

L. NEMA KVA locked rotor CODE LETTER: "G" or better.

M. Efficiency:

1. Per IEEE Standard 112, 1978 or latest edition, Test Method B.
2. Unless otherwise noted, all motors less than 1 HP shall be of standard efficiency.
3. All motors 1 HP and larger shall comply with the following "High Efficiency" motor schedules as follows. Motors shall have guaranteed minimum efficiencies equivalent to or exceeding the following:

HP	Min. Eff. (%)	HP	Min. Eff (%)
1	85.0	30	93.0
1-1/2	85.0	40	93.6
2	85.5	50	94.0
3	88.0	60	94.5
5	88.5	75	95.0
7-1/2	90.0	100	95.0
10	90.0	125	95.0
15	92.0		
20	92.4		
25	93.0		

2.3 SAFETY SWITCH

A. Square D Co. Heavy Duty Series; Westinghouse Electric Corp. H-600, with the following:

1. Fused or unfused as required.
2. Fused switches equipped with fuseholders to accept only the fuses specified in Section 16181 (U.L. Class RK-1, RK-5, L).
3. NEMA 1 enclosure unless otherwise indicated on drawing or required. 3R for devices installed outdoors.
4. Switch rated 240V for 120V, 208V, 240V circuits; 600V for 277V, 480V circuits.
5. Solid neutral bus when neutral or grounding conductor is included with circuit.
6. Current rating and number of poles as indicated on drawings.

B. Fused and non-fused disconnect switches shall be '2-pole' type with lug for ungrounded B phase' conductor and lug for the grounding conductor.

2.4 NAMEPLATES

A. Phenolic Type: Standard phenolic nameplates with 3/8" minimum size lettering engraved thereon to match existing. Adhesive backing.

PART 3 - EXECUTION

3.1 GENERAL

A. Equipment shall be connected in a neat and skillful manner. Equipment deliver with terminal boxes that are inadequate shall be equipped with special boxes that suite the conditions by the Mechanical Contractor furnishing the equipment.

B. In general, rigid conduit or tubing shall be used, but equipment that requires movement or that would transmit vibration to conduit shall be wired with flexible (liquid tight) steel conduit not over 18" long.

C. All equipment shall be grounding with a green covered ground wire run inside the conduit and connected to equipment frame on one end and to grounding system on the other end. All electrical work required in the Mechanical Contracts shall conform to the applicable requirements of Division 26 of these Specifications.

D. The Mechanical Contractors shall cooperate with the Contractor for Electrical Work in making all necessary tests and in receiving, storing, and setting all motor-driven equipment, electrical devices, and controls furnished and/or installed under these contracts.

E. Install heaters correlated with full load current of motors provided.

F. Set overload devices to suit motors provided.

3.2 INSTALLATION

A. Control Wiring:

1. Provide control wiring and connections.
2. Where control circuit interlocking is required between individually mounted motor controllers, provide a single pole on-off switch in a threaded type box mounted adjacent to motor safety switches which are remote from the control transformer (to enable interlock circuit to be opened when the motor safety switch is opened).

B. Nameplates: Adhere the nameplate on the cover of NEMA 1 or 3R enclosures. Provide phenolic nameplates as follows:

1. On each remote control station, indicating motor controlled.
2. On each disconnect switch, indicating purpose of switch.

3.3 DISCONNECTS

A. Motor Controllers: Provide safety switch for all motor controllers.

B. Motors: Provide a disconnect switch for all motors. Provide a separate safety switch for motors which are not within sight of the starter.

C. Provide safety switches for all factory packaged equipment.

D. Provide NEMA 3R safety switch for all rooftop and outdoor equipment.

E. Provide unit mounted disconnect switches for all equipment such as unit heaters, fans, unit ventilators, incremental units, etc.

END OF SECTION 26 0511

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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. Building wires and cables rated 600 V and less.
2. Metal-clad cable, Type MC, rated 600 V or less.
3. Connectors, splices, and terminations rated 600 V and less.
4. Sleeves and sleeve seals for cables.

B. Related Sections include the following:

1. Division 26 Section "Voice and Data Communications Cabling" for cabling used for voice and data circuits.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. 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 NFPA 70.

1.5 COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. American Insulated Wire Corp.; a Leviton Company.
2. General Cable Corporation.
3. Senator Wire & Cable Company.
4. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN/THWN-2.

2.2 METAL-CLAD CABLE, TYPE HCF MC

A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.
4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Circuits:

1. Single circuit.
2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.

D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

E. Ground Conductor: Insulated.

F. Utilize HCF-MC with insulated ground conductor and bonding conductor cable for patient care areas.

G. Conductor Insulation:

1. Type TFN/THHN/THWN-2: Comply with UL 83, 1569 and 1063

H. Armor: Aluminum, interlocked.

2.3 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Tyco Electronics Corp.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.4 SLEEVES FOR CABLES

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

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.5 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.

1. Sealing Elements: NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Stainless steel. Include two for each sealing element.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

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.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN/THWN-2, single conductors in raceway.

C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN/THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway, metal-clad cable, Type HCF MC.

F. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Class 1 Control Circuits: Type THHN/THWN-2, in raceway.

I. Class 2 Control Circuits: Type THHN/THWN-2, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. 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.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Support cables according to Division 26 Section "Hangers and Supports for Electrical Systems."

F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

G. Metal Clare Cable HCF-MC may be used only when approved by the local authority having jurisdiction and only for concealed branch circuit wiring starting ten (10) feet maximum from the first wiring device (Junction box is not a device) off of a rigid metallic homerun raceway.

H. Metal Clad Cable HCF-MC shall not be used for feeders and branch circuit home runs.

I. Metal Clad Cable HCF-MC shall be installed concealed for branch circuit power including receptacles and lighting in the following areas:

1. Wiring above ceilings
2. Wiring in metal stud and drywall walls.
3. Rigid metallic raceway shall stub out from panelboards into accessible ceilings to within ten (10) feet maximum of the first wiring device (junction box is not a device). Rigid metallic raceway shall also be installed in block walls and in all exposed areas for similar branch circuiting.

4. All metal clad cable shall be securely fastened to building frame on centers not exceeding six (6) feet within 12" of every outlet box or fitting with "caddy" type fasteners or approved equal means.
5. All fittings used for metal clad cable be UL approved for the usage.

3.4 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 and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both wall surfaces.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and cable unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to Division 07 Section "Joint Sealants."

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to Division 07 Section "Penetration Firestopping."

L. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.

M. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.6 SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, 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. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 26 0519

SECTION 260526 - GROUNDING AND BONDING

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 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. Test wells.
2. Ground rods.
3. Ground rings.
4. Grounding arrangements and connections for separately derived systems.
5. Grounding for sensitive electronic equipment.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:

1. Instructions for periodic testing and inspection of grounding features at grounding connections for separately derived systems based on NFPA 70B.

    a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.
    b. Include recommended testing intervals.

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.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Bare Grounding Conductor and Conductor Protector for Wood Poles:

1. No. 4 AWG minimum, soft-drawn copper.
2. Conductor Protector: Half-round PVC or wood molding. If wood, use pressure-treated fir or cypress or cedar.

D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches in cross section, unless otherwise indicated; with insulators.

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.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel, sectional type; 3/4 inch by10 feet.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.
2. Backfill Material: Electrode manufacturers' recommended material.

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. Underground Grounding Conductors: Install bare tinned copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 1 inch, minimum, from wall 6 inches above finished floor, unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: 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: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 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. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Armored and metal-clad cable runs.

8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

D. Isolated 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.

E. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. 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.

F. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

G. Metal and Wood Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

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. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. 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.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

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.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
2. Pad-Mounted Equipment: 5 ohms.

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 26 0526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

D. 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.

1.3 SUBMITTALS

A. Product Data: For 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.

1.4 QUALITY ASSURANCE

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

B. Comply with NFPA 70.

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

2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
3. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
5. 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. Perforated hangers or wire-tie supports are not acceptable. All hangers and supports shall have corrosion resistant finish.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical 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; black and 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: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

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) Hilti, Inc.
2) ITW Ramset/Red Head; Illinois Tool Works, Inc.
3) MKT Fastening, LLC.
4) Simpson Strong-Tie Co., Inc.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated 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. 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 B-Line, Inc.
2) Empire Tool and Manufacturing Co., Inc.
3) Hilti, Inc.
4) ITW Ramset/Red Head; Illinois Tool Works, Inc.
5) MKT Fastening, LLC.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. 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: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

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, IMC, and RMC 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 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.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

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, IMC, and RMC 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.

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 Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. 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.
6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds 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. Touchup: Comply with requirements in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 26 0529

SECTION 26 0533 - RACEWAYS AND BOXES

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 raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. FMC: Flexible metal conduit.

D. IMC: Intermediate metal conduit.

E. LFMC: Liquidtight flexible metal conduit.

F. LFNC: Liquidtight flexible nonmetallic conduit.

G. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.

C. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members in the paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in the paths of conduit groups with common supports.

D. Source quality-control test reports.

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 CONDUIT AND TUBING

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. Allied Tube & Conduit; a Tyco International Ltd. Co.
3. Anamet Electrical, Inc.; Anaconda Metal Hose.
4. Maverick Tube Corporation.
5. O-Z Gedney; a unit of General Signal.
6. Wheatland Tube Company.

B. Rigid Steel Conduit: Comply with ANSI C80.1 and UL 6.

C. IMC: Comply with ANSI C80.6 and UL1242.

D. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

E. EMT: Comply with ANSI C80.3 and UL 797.

F. FMC: Comply with UL 1, Zinc-coated steel.

G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

H. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203.
2. Fittings for EMT: Steel, set-screw type.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

I. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 NONMETALLIC CONDUIT AND TUBING

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. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
5. Condux International, Inc.
6. ElecSYS, Inc.
7. Lamson & Sessions; Carlon Electrical Products.
8. RACO; a Hubbell Company.
9. Thomas & Betts Corporation.

B. ENT: NEMA TC 13 and UL 1653.

C. RNC: Comply with NEMA TC 2 and UL 651, Type EPC-80-PVC, unless otherwise indicated.

D. LFNC: Comply with UL 1660.

E. Fittings for ENT and RNC: Comply NEMA TC 3; match to conduit or tubing type and material.

F. Fittings for LFNC: Comply with UL 514B.

2.3 OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY 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. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.

B. Description: Comply with UL 2024; flexible type, approved for plenum installation.

2.4 METAL WIREWAYS

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 B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, 12, 3R, unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Screw-cover type Flanged or gasketed type, as indicated.

E. Finish: Manufacturer's standard enamel finish.

2.5 NONMETALLIC WIREWAYS

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. Hoffman.
2. Lamson & Sessions; Carlon Electrical Products.

B. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.6 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Manufacturer's standard enamel finish in color selected by Architect.

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. Thomas & Betts Corporation.
b. Walker Systems, Inc.; Wiremold Company (The).
c. Wiremold Company (The); Electrical Sales Division.

B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors.

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 Incorporated; Wiring Device-Kellems Division.
b. Lamson & Sessions; Carlon Electrical Products.
c. Panduit Corp.
d. Walker Systems, Inc.; Wiremold Company (The).
e. Wiremold Company (The); Electrical Sales Division.

2.7 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. Erickson Electrical Equipment Company.

4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. Robroy Industries, Inc.; Enclosure Division.
8. Thomas & Betts Corporation.
9. Walker Systems, Inc.; Wiremold Company (The).
10. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, Enclosures, and cabinets installed in wet locations shall be listed for use in wet location.

C. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

D. Cast-Metal Outlet and Device Boxes: NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

E. Nonmetallic Outlet and Device Boxes: NEMA OS 2.

F. Metal Floor Boxes: Cast metal, fully adjustable, rectangular.

G. Nonmetallic Floor Boxes: Nonadjustable, round.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.

J. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.

K. Cabinets:

1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.8 SLEEVES FOR RACEWAYS

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

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.9 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.

1. Sealing Elements: NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Stainless steel. Include two for each sealing element.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.
4. SOURCE

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit.
2. Concealed Conduit, Aboveground: Rigid steel conduit.
3. Underground Conduit: Rigid steel conduit or RNC, Type EPC 80 PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit. Includes raceways in the following locations:

   a. Loading dock.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
   c. Mechanical rooms.

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Hazard Classified Areas: Rigid steel conduit.
6. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
7. Damp or Wet Locations: Rigid steel conduit.
8. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: Plenum-type, optical fiber/communications cable raceway or EMT.

9. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: Riser-type, optical fiber/communications cable raceway or EMT.
10. 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 and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

E. Do not install aluminum conduits in contact with concrete.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

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. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Change from ENT to rigid steel conduit, or IMC before rising above the floor.

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. 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.

L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:

1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.
2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.

M. Install raceway sealing fittings at suitable, approved, and accessible locations 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 at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

N. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.

1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:

   a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
   b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
   c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
   d. Attics: 135 deg F temperature change.

2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

O. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semi-recessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

Q. Set metal floor boxes level and flush with finished floor surface.

R. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
4. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

5. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both surfaces of walls.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with Division 07 Section "Penetration Firestopping."

L. Roof-Penetration Sleeves: Seal penetration of individual raceways with flexible, boot-type flashing units applied in coordination with roofing work.

M. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.5 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. 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.

3.6 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

3.7 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 26 0533

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

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:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

B. Related Requirements:

1. Section 07 8413 "Penetration Firestopping" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. LEED Submittals:

1. Product Data for Credit EQ 4.1: For sealants, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit EQ 4: For sealants, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. PVC-Pipe Sleeves: ASTM D 1785, Schedule 40.

D. Molded-PVC Sleeves: With nailing flange for attaching to wooden forms.

E. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

F. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:

a. Advance Products & Systems, Inc.
b. CALPICO, Inc.
c. Metraflex Company (The).
d. Pipeline Seal and Insulator, Inc.
e. Proco Products, Inc.

2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Carbon steel.
4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. Presealed Systems.

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
2. Sealant shall have VOC or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
3. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Section 07 9200 "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.

4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 26 0544

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 01 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. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. 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. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: 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.

F. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

G. Tape and Stencil for Raceways Carrying Circuits More Than 600 V: 4-inch wide black stripes on 10-inch centers diagonally over orange background that extends full length of raceway or duct and is 12 inches wide. Stop stripes at legends.

H. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

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.

E. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, 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.

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. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.4 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

C. Tag:

1. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, compounded for direct-burial service.
2. Overall Thickness: 5 mils.
3. Foil Core Thickness: 0.35 mil.
4. Weight: 28 lb/1000 sq. ft.
5. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.

2.5 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.

D. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.6 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.

2.7 EQUIPMENT IDENTIFICATION LABELS

A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

B. Retain paragraph below to specify type of label for identifying outdoor equipment if specified in "Identification Schedule" Article.

2.8 CABLE TIES

A. 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.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and 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. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

G. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.

J. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil 4-inch wide black stripes on 10-inch centers over orange background that extends full length of raceway or duct and is 12 inches wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inchhigh black letters on 20-inch centers. Stop stripes at legends. Apply to the following finished surfaces:

1. Floor surface directly above conduits running beneath and within 12 inches of a floor that is in contact with earth or is framed above unexcavated space.
2. Wall surfaces directly external to raceways concealed within wall.
3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.

B. Accessible Raceways, More Than 600 V: Self-adhesive vinyl or Snap-around labels. Install labels at 10-foot30-foot maximum intervals.

C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120V to ground: Identify with self-adhesive vinyl tape applied in bands. Install labels at 10-foot maximum intervals.

D. 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.

E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

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.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

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.

F. Power-Circuit Conductor Identification, More than 600 V: For conductors in vaults, pull and junction boxes, manholes, and handholes, use nonmetallic plastic tag holder with adhesive-backed phase tags, and a separate tag with the circuit designation.

G. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

H. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

I. 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.

J. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

K. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: 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.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.
    b. Controls with external control power connections.

M. 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.

N. 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.

O. 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, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

   a. Indoor Equipment: Self-adhesive, 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. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
   c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
   d. 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 self-adhesive, engraved, laminated acrylic or melamine label.
   b. Enclosures and electrical cabinets.
   c. Access doors and panels for concealed electrical items.
   d. Switchboards.
   e. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
   f. Emergency system boxes and enclosures.
   g. Enclosed switches.
   h. Enclosed circuit breakers.
   i. Enclosed controllers.
   j. Push-button stations.
   k. Power transfer equipment.
   l. Contactors.
   m. Remote-controlled switches, dimmer modules, and control devices.
   n. Battery-inverter units.
   o. Battery racks.
   p. Power-generating units.
   q. Monitoring and control equipment.

END OF SECTION 26 0553

SECTION 260923 - ARCHITECTURAL LIGHTING CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Architectural controls.

1. Echo.
2. Response.

1.2 RELATED SECTIONS

A. Section 26 27 16 - Electrical Cabinets and Enclosures.

B. Section 26 09 43 - Network Lighting Controls.

C. Section 41 67 19 - Plant Safety Equipment. Building integrator shall provide integration of the lighting control system with Building Automation Systems.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data:

1. Manufacturer's data sheets on each product to be used.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Verification Samples: Two representative units of each type, size, pattern, and color.

D. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.5 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

B. Protect from damage due to weather, excessive temperature, and construction operations.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: ETC, Inc., which is located at: 3031 Pleasant View Rd., P. O. Box 620979; Middleton, WI 53562-0979; Phone: 608-831-4116; Email:mail@etcconnect.com; Web:www.etcconnect.com.

B. Crestron

2.2 ARCHITECTURAL CONTROLS - ECHO

A. Product: Digital Room Controllers for lighting and pluggable loads: to be the UnisonEcho Room Controller by ETC, Inc.

1. Model ERMC8-G2: Echo 8-zone Room Controller with eight relays and eight 0- 10 V dimming outputs.
2. Mechanical:

a. Finish: Fine-textured, black powder coat.
b. Mounting: Wall, Flush-mount. Rated for installation in plenum air space.
c. Mounting: Wall, Surface-mount. Rated for installation in plenum air space.
d. Onboard configuration without use of software.

1) Rotary Switch: 16 position, assigns a starting zone number of the room controller. Additional zones will be assigned sequentially thereafter.
2) Contact input for use in UL 924 Emergency Systems.

e. MicroSD for software upgrades.
f. LED indicators:

1) UL924 Active: Red.
2) Demand Response Active: Green.
3) Contact Input Active: Green.
4) Station Power Supply Active: Green.

3. Electrical:

    a. Power Input: 120-277 Volts AC 47-63Hz for control electronics and each independent zone. Daisy Chain of an input to multiple control zones to be supported.
    b. Latching Relay for Each Output: 20A, fully rated.
    c. A 0-10V dimming output per zone supports 0-10V sink control rated for 100 mA per output.

        1) 0-10V wiring to be fully isolated from ground within Room Controller.

    d. EchoConnect control communications using Class 2 wiring:

        1) Control network to utilize unshielded twisted pair, Belden 8471, or equivalent wire, plus one No. 14 ESD drain wire when not installed in grounded metal conduit. Use of Category 5, or better, control network wiring is also be supported when utilizing appropriate termination kits available from the manufacturer.
        2) Topology free supporting wiring in bus, loop, star, or any combination of these.

    e. Zone Controllers support communication with 16 EchoConnect control products and 15 additional Echo output products.
    f. Room Controllers: UL and cUL Listed. Conform to UL 508 and UL 2043 Plenum rated standards.

4. Functional:

    a. Automatic configuration to most energy-efficient control scheme based on other devices installed in same room or space.

        1) Support operation in Auto-on/Auto-off, Manual-on/Auto-off and Manual-on/Manual-off modes based on the connected control devices without need for manual configuration.

    b. Available in 4 or 8 zone configurations with a 20A, fully- rated, relay output and 0-10V dimming output per zone.
    c. Support patching of relay and 0-10V dimming outputs to spaces and zones via the EchoAccess mobile app.
    d. UL924 Listed for emergency lighting circuits and activate only selected outputs. Excluded loads shall be shed and not produce output during emergency conditions.
    e. Activate a designated Echo control function upon receiving a contact closure on the Contact Input. Contact Input: Support normally open (NO) maintained, normally closed (NC) maintained or momentary toggle functionality.
    f. Support Demand Response input via contact closure. Upon input controller reduces maximum output to 70 percent of peak usage. 0-10V outputs support Demand Response maximum level threshold adjustment using a rotary fader and are assignable per circuit while measuring usage.

        1) Support triggering Demand Response of external Echo Power Controllers over EchoConnect bus.

    g. Support commissioning without use of software or specialty configuration tools.

B. Interfaces:

1. Product: Unison Echo Expansion Bridge.

   a. Model: EEB Echo Expansion Bridge.
   b. Combines four Echo segments to create larger Echo control systems.
   c. Integrate Echo control systems into Unison Paradigm Systems allowing for Paradigm control and status indication.
   d. Allows for connection to EchoAccess Mobile App via a wireless access point.

2. Product: Unison Echo BACnet Interface.

   a. Model: EBI Echo BACnet Interface.
   b. Reports real-time Echo system status to BACnet system.
   c. Reporting of all Echo control points are supported.
   d. Integrates Echo lighting system into building-wide monitoring and management systems.
   e. Accepts standard BACnet control commands.

3. Product: Unison Echo Integration Interface.

   a. Model: EII Echo Integration Interface.
   b. Reports real-time Echo system status to the third-party system.
   c. Accepts predefined UDP commands.
   d. Compatible with all Echo products.
   e. Definable subscription addresses for security.

4. Standards Compliance: UL and cUL Listed. CE Compliant.

   a. California Title 24 compliant.
   b. RoHS compliance.
   c. WEEE.

5. Functional: Unison Echo Expansion Bridge.

   a. Combines four Echo Control Segments to create a single larger Echo control system with the following maximums:

      1) 4 Power Supplies. As needed based on system size.
      2) 64 Control Products: Stations, Sensors, and Interfaces.
      3) 64 Output Products: Zone Controllers, Panel Power Products, DMX Scene Controller, EEI.
      4) Zones per space: 16.
      5) Spaces per bridge: 16.

   b. Connects to a wireless access point to allow the EchoAccess Mobile App to connect to the Echo system via Wi-Fi.
   c. Allows Paradigm systems to control and display status of the following:

      1) Echo Presets.
      2) Echo Zones.
      3) Echo Space Combine.
      4) Echo Space Lockout.

   d. Paradigm supports a maximum of 16 Expansion Bridges per Paradigm Control Processor and a maximum of 128 Bridges per Paradigm Project.

6. Functional: Unison Echo BACnet Interface:

    a. Integrates with any BACnet IP system.
    b. Uses default BACnet commands.
    c. Reports the status of the following to a BACnet system:

        1) Zones, Presets, Space Occupancy, Space Lockout, Timed Event Hold, and Demand Response.

    d. Allows a BACnet system to control the following:

        1) Zones, Presets, Space Lockout, Timed Event Hold, and Demand Response.

7. Functional: Unison Echo Integration Interface.

    a. Integrates with any system that supports User Datagram Protocol (UDP) strings
    b. Reports the status of the following to an external system: Zones, Presets, and Sequences.
    c. Allows an External System to Control the Following: Zones, Presets, and Sequences.

8. Mechanical:

    a. Din-rail mounting complies with DIN43880 (35/7.5 rail).
    b. Intuitive four-button interface and onboard display for identification, status, and configuration.

9. Electrical:

    a. MicroSD card slot for firmware maintenance.
    b. Connects to two-wire EchoConnect control networks through low-voltage Class 2 wiring.

        1) Topology-Free Wiring: Belden 8471 and No. 14 ESD drain wire.
        2) Two No. 16 AWG wires for 24 VDC auxiliary power when required.

    c. Supports PoE or 24VDC.
    d. Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.

10. Operational Room Temperature: 32 to 122 degrees F (0 to 50 degrees C).
11. Relative Humidity Non-Condensing: 5 to 95 percent.

C. Sensors:

1. Product: Unison Echo Dual Tech Occupancy and Vacancy Sensors.

    a. Model E-DOC-C: Dual Tech Ceiling Occupancy Sensor.

2. Standards Compliance: cULus Listed. CE compliant.

3. Functional:

    a. Occupancy sensors support configurable auto-on/auto-off functionality (occupancy sensing) functions.
    b. Vacancy sensors support configurable manual-on/auto-off (vacancy sensing) functions.
    c. Ceiling Sensor:

        1) 360-degree coverage pattern.
        2) Includes configurable coverage masks.
        3) Small Room, Large Room, and High Ceiling Coverage Patterns.

    d. Wall Sensors:

        1) Wide and Narrow coverage patterns.

    e. Supports walk-thru mode for verifying coverage area.

        1) Sensor lens illuminates for walk-thru and test mode.

    f. Sensor coverage tested to NEMA WD 7-2000.

4. Mechanical:

    a. No visible means of attachment.
    b. Constructed of injection-molded, ABS plastic.
    c. Ceiling Mount - Surface or box mountable using included mounting plate.

        1) Supports drywall, plaster, wood, and concrete mounting.
        2) Mounts to any standard ceiling electrical box (supplied by others).
        3) Mounts to compressed-fiber ceilings using wire-form adapter.

    d. Wall Mount: Flush-mount to industry standard backbox, RACO 690 or equivalent.

5. Electrical:

    a. Connects via EchoConnect control network. Low-voltage Class 2 wiring.

        1) Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.
        2) Wiring: Bus, loop, homerun, or any combination of these.

    b. Control Wiring per System: Up to 1640 ft (500 m).

6. Environmental:

    a. Operating Temperature Range: 32 to 104 degrees F (0 to 40 degrees C).
    b. Relevant Humidity Non-Condensing: 30 to 90 percent maximum.

D. Time Clock:

1. Product: Unison Echo TimeClock.

    a. Model E-ATC: Echo TimeClock Station.

2. Functional:

    a. Home screen displays time, date, and any active tasks.
    b. Ability to hold current preset for timed-event override (up to two hours).
    c. Supports up to 16 presets.
    d. Supports every day, weekday, weekends, and day of week recurrence.
    e. Supports Time-of-day, sunrise with offset, and sunset with offset events.
    f. Supports 50 events.
    g. Supports up to 16 control spaces.

3. Mechanical:

    a. Mounts in flush-mount, industry-standard, two-gang backboxes.
    b. Surface-mount backboxes available from ETC.
    c. High-contrast, backlit graphical LCD.
    d. Six-button menu-navigation keypad.
    e. Locking cover available.
    f. Fully enclosed electronics assembly.

4. Electrical:

    a. Connects via EchoConnect control network. Low-voltage Class 2 wiring.

        1) Topology-free and polarity-independent wiring over Belden 8471 and one No. 14 ESD drain wire.
        2) Wiring: Bus, loop, homerun, or any combination of these.

    b. Control Wiring per System: Up to 1640 ft (500 m).

E. Stations:

1. Product: Unison Echo Inspire Control Stations. Initiate preset, zone, and space controls for entire system. Communicates with dimmers, relays, and power control panels.

    a. Model E1008: Inspire 8-Button Control Station.

2. Standards Compliance: cULus Listed. CE Certified.
3. Functional:

    a. Button and Fader Functions: preset activation/ deactivation, record, raise, lower, zone on/off control and room combine.
    b. Blue button illumination for active status.
    c. Amber or no button illumination for inactive status.
    d. Fader halo-illumination displays actual output level.
    e. Zone or preset control from any station with real-time user toggle.

4. Mechanical:

    a. Enclosed electronics assembly and faceplate included.
    b. No visible means of attachment.
    c. Flush-mount in industry-standard backbox, RACO 690 or equivalent.
    d. Surface-mount backboxes available from manufacturer.

e. Constructed of injection-molded, ABS plastic.
f. Cantilevered switch arrays with removable button caps.
g. User configurable legends on each button or use standard legends that come with each station. Field configurable without the use of tools.
h. Integral LED response indicator for each button with indication of active(blue) and inactive(amber or off) state.

5. Electrical:

a. Connect via EchoConnect control network. Low-voltage Class 2 wiring.
b. Topology-free wiring over Belden 8471 and one No. 14 ESD drain wire.

1) Control Wiring: 1640 ft (500 m).

c. Belden 1583A or equivalent Ethernet control wire when used with Cat5 termination accessories.

1) Control Wiring: 1000 ft (300 m)using CAT5.

d. Wiring: Bus, loop, homerun, or any combination of these.
e. Station Terminations: Removable connectors.

6. Operating Temperature Range: 32-122 degrees F (0-50 degrees C).
7. Relevant Humidity Non-Condensing: 5-95 percent maximum.

F. Power Modules:

1. Product: Unison EchoConnect Station Power Supply by ETC Inc.

a. Model E-SPS-DIN: DIN Rail Mount Station Power Supply with 24 V Aux.

2. Convert Input Power into Class II Low-Voltage Power with data line. Energize control stations, zone controllers, time clock, and devices for multi-scene lighting control.
3. Electrical:

a. Utilize line-voltage power supplied by contractor, terminated inside dimming enclosure, or power supply.
b. EchoConnect Communications with Remote Devices: Control stations, zone controllers, time clock stations and other devices.
c. EchoConnect Network: Low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded). And one No 14 AWG drain wire for system not using grounded metal conduit.

1) Topology Free Network: Bus, loop, home run, star, or any combination.
2) Control Bus Wiring: Permit total wire runs of 1640 ft (500 m)
3) Wiring Between Stations: Not to exceed 1313 ft (400 m).
4) CAT5 Wiring: For systems not requiring topology free infrastructure or EchoConnect bus lengths not more than 1000 ft (305 m).

4. Capacity: Power for up to 16 control stations, zone controllers, time clock stations and other devices, and/or provide 24 V Auxiliary Power to devices that require it.

G. Touchscreen Control Stations to be Unison Echo EchoTouch Controller Mk2 by ETC, Inc. Controls 512 DMX addresses on up to 80 control zones.

1. Standards Compliance: cULus Listed and CE Compliant. FCC Compliant.
2. Operation: Graphic buttons, faders, and images on at least 7 user programmable default and fully graphical control pages.
3. Touchscreen: Integrated with ETC Unison Echo Controls.

    a. Seven-inch, backlit liquid crystal display. Resolution: 800 by 400 pixels minimum, with capacitive multi-touch interface.
    b. Bezels: Cast aluminum. Finish: Fine texture powder coat.

        1) Four colors: Cream, Gray, Black, or Signal White.
        2) No visible means of attachment.

    c. Supports Surface, Flush and Rack Mounting.

        1) Flush-mount: To industry standard 3 gang back box.
        2) Surface Back Box Dimensions (WxHxD): 7.35 x 4.88 x 3.5 inches 187 x 124 x 3.5 89 mm) available from Manufacturer.
        3) Rack Mounting: Fit in standard 19 inch (483 mm) racks, no taller than 3 EIA rack units.

4. Electrical:

    a. RJ45 Ethernet Port: Connection to lighting system and Power over Ethernet.
    b. Control Wiring: EchoConnect Connection terminals.

        1) Low-voltage, Class II unshielded twisted pair, type Belden 8471 and one No. 14 ESD drain wire; when not installed in grounded metal conduit.
        2) Topology free. Point-to-point, bus, loop, home run or any combination.

    c. Power Input, Non-PoE: Two, No. 16 AWG stranded wires for 24 VDC.
    d. Typical Power Draw: 400 mA.
    e. Firmware Maintenance: USB type A connector.
    f. Network:

        1) Network Cabling: Category 5 or better. Conform to TIA-568A/B. Installed by qualified network installers.

    g. Functional System:

        1) Presets: 64. Contained in non-volatile electronic memory.
        2) Internal sequences: 4. Record user-selected zone levels.
        3) Touchscreen: Equipped with on-board help system.
        4) Software upgrades: Via USB drive only.
        5) USB Port: Show data to be saved for archival or transfer to other consoles or a personal computer.

h. Patching: Facilities for dimmers and multi-parameter devices via built in library of fixture definitions.

1) Fixture Library: Updated via software based updates. Create custom fixture definitions using offline application.
2) Touchscreen: Support patching, address setting, and mode changes using Remote Device Management (RDM) on local DMX/RDM port.

i. Playback Control: Customizable zone display. Rearrange graphical representations for control channels to mimic fixture positions in installation.

1) Seven user customizable interactive pages.
2) Color and white pickers.
3) Touch-based parameter controls with reference-based palettes.
4) Virtual level wheel.

j. Layout and Configuration: View and modify layout of user pages.

1) Add, remove, or edit the following items: Preset buttons. Off buttons. Sequence buttons. Zone and space modifier buttons. Space combine buttons. Zone fader.
2) Three Options for Inactivity: Dim screen to level. Turn screen off. Display user chosen inactivity image.
3) Multiple Configurations: May be stored within an LCD Station.

5. Time Clock: Touchscreen built-in astronomical and real time event engine allowing presets and sequences activation.

a. Support 80 Events: Astronomical, real-time, and manual control events in 16 control spaces.
b. Timed Events: Programmable via Touchscreen.

1) Assigned to day types.
a) Day Types: everyday, weekday, weekend, and day of week.

2) Activation: Based on sunrise, sunset, time of day, opened and closed events and configurable state based engine.
3) Compensate for regions using daylight saving time.
4) Assignment to events via time clock user interface.
5) Resumes automatically after power loss.

c. Support timed event hold. Timed Event Hold: Meet CA Title 24 requirements.

6. External Control: Control of lighting system through built-in UDP integration.

a. Supports full control of lighting system using UDP strings.

1) Security settings to limit incoming control strings to subscribers-only.

b. Supports up to two subscribers for receiving status messages.

c. Control and status integrations from 3rd party systems include:

1) Zones.
2) Channels.
3) Presets.
4) Spaces.
5) Sequences.
6) Lockout.

2.3 ARCHITECTURAL CONTROLS - RESPONSE

A. Opto-Splitter Series:

1. Product: Response Opto-Splitter by ETC Inc. Provides quality and reliable DMX data distribution using industry-standard DMX and RDM.

a. Model: RSN-OPTO-DBOX. 16 Output - DIN box dual 8 Opto.
b. Standards Compliance: cETLus Listed, CE compliant, EAC certified, RoHS compliant, WEEE.
c. Functional:

1) No configuration required.
2) Supports DMX512, DMX512 (1990), DMX512-A, ANSI E1.20 Remote Device Management (RDM).
3) Supports 256 total RDM devices

d. Mechanical:

1) Power and data activity LED indicators.
a) Blue power indicator.
b) Green DMX activity indicator.

e. Environmental:

1) Ambient operating temperature: 32 to 104 degrees F.
2) Operating Humidity: 5 - 95 percent non-condensing.
3) Storage temperature: Minus 40 to 158 degrees F.

f. Electrical:

1) Supports DMX input and DMX thru.
2) Provides optically isolated DMX/RDM outputs.
3) IDC termination kits available.
4) DIN Box form factors include a suitable power supply.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly constructed and prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections: Manufacturer's service representative shall perform the following inspections and prepare reports. Tests shall be witnessed by Owner's Representative.

1. Complete installation and start-up checks according to manufacturer's written instructions.
2. Verify Class II connections.
3. Check for completion of Class I wiring checks prior to connection to load controls.
4. Set IP addresses and other network settings of system controller(s) as per facilities IT instructions.
5. Load completed program file to controller.
6. Configure all stations.
7. Verify / complete task programming for all buttons, timers, and sensors.
8. Coordinate with lighting specifier as to lighting levels, fade and ramp rates on button controls.
9. Correct any system issues and retest.

C. Provide a report in table format including each room or space that has occupancy sensors and/or light level sensors installed. Indicate the following for each space:

1. Date of test or inspection.
2. Pole Number and Fixture Address.
3. Quantity and Type of each device installed
4. Sequence of Operation for the control each zone controlled.
5. Verification that the control of each space complies with the Sequence of Operation.
6. Test Reports for each device.
7. Photo control Sensors, indicate the following:

    a. Ambient light level at which the lights turn on (low level).
    b. Ambient light level at which the lights turn off.
    c. Location of light level readings.
    d. Time delay settings.

8. Manual Controls, indicate the following:

    a. Light fixture output steps up to 100% upon manual activation.

b. Light fixture output steps down to low level upon manual activation.
c. Light fixture output resets to default low level photocontrol operation after lights are turned off (by methods, manual or automatic means).
d. Time delay settings.

3.5 DEMONSTRATION AND TRAINING

A. Before Substantial Completion, arrange and provide a one-day Owner instruction period to designated Owner personnel. Set-up, starting of the lighting control system and Owner instruction includes:

1. Confirmation of entire system operation and communication to each device.
2. Confirmation of operation of individual relays, switches, and sensors.
3. Confirmation of system Programming, photocell settings, override settings, etc.
4. Provide training to cover installation, maintenance, troubleshooting, programming, and repair and operation of the lighting control system.

3.6 PRODUCT SUPPORT AND SERVICE

A. Factory telephone support shall be available at no cost to the Owner following acceptance. Factory assistance shall consist of assistance in solving application issues pertaining to the control equipment.

3.7 CLEANING AND PROTECTION

A. Clean products in accordance with the manufacturer’s recommendations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 262416 - PANELBOARDS

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:

1. Lighting and appliance branch-circuit panelboards.

1.3 SUBMITTALS

A. Product Data: For each type of panelboard, switching and overcurrent protective device, accessory, and component indicated. 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. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

C. Qualification Data: For qualified testing agency.

D. Field Quality-Control Reports:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

E. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

F. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "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.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

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.

C. Comply with NEMA PB 1.

D. Comply with NFPA 70.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Remove loose packing and flammable materials from inside panelboards.

B. Handle and prepare panelboards for installation according to NEMA PB 1.

1.6 PROJECT CONDITIONS

A. Environmental Limitations:

1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

    a. Ambient Temperature: Not exceeding minus 22 deg. F, 23 deg. F to plus 104 deg. F.
    b. Altitude: Not exceeding 6600 feet.

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet.

1.7 COORDINATION

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.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

1.9 EXTRA MATERIALS

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 Ground Fault Equipment Protection (GFEP) Types: Two spares for each panelboard.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Enclosures: Surface-mounted 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

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
4. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
5. Finishes:

a. Panels and Trim: galvanized 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: Galvanized steel.
c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.

6. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.

B. Incoming Mains Location: Top and bottom.

C. Phase, Neutral, and Ground Buses:

1. Material: Hard-Drawn copper, 98 percent conductivity.
2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.

D. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus-Configured Terminators: Mechanical type.

E. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

F. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

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. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: lugs only.

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.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

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. Square D; a brand of Schneider Electric.

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. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
4. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
5. 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. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.

d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

H. Comply with NECA 1.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

D. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
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. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
c. Instruments and Equipment:

1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

E. Panelboards will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as specified in Division 26 Section "Overcurrent Protective Device Coordination Study."

C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.6 PROTECTION

A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 26 2416

SECTION 262726 - WIRING DEVICES

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. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Snap switches and wall-box dimmers.
3. Cord and plug sets.
4. Floor service outlets, and multi-outlet assemblies.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

B. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

B. 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.

C. Comply with NFPA 70.

1.6 COORDINATION

A. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1. Cord and Plug Sets: Match equipment requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).
4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).

2.2 STRAIGHT BLADE RECEPTACLES

A. Convenience Tamper-resistant Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper;
b. Hubbell; HBL5351TR (single), CR5352TR (duplex).
c. Leviton
d. Pass & Seymour

2.3 GFCI RECEPTACLES

A. General Description: Straight blade, tamper-resistant non-feed through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; GFTRST20.
b. Pass & Seymour

2.4 HAZARDOUS (CLASSIFIED) LOCATION RECEPTACLES

A. Wiring Devices for Hazardous (Classified) Locations: Comply with NEMA FB 11 and UL 1010.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Crouse-Hinds.
b. EGS/Appleton Electric.
c. Killark; a division of Hubbell Inc.

2.5 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.6 SNAP SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 2221 (single pole), 2222 (two pole), 2223 (three way), 2224 (four way).
b. Hubbell; CS1221 (single pole), CS1222 (two pole), CS1223 (three way), CS1224 (four way).
c. Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).
d. Pass & Seymour; 20AC1 (single pole), 20AC2 (two pole), 20AC3 (three way), 20AC4 (four way).

C. Pilot Light Switches, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 2221PL for 120 V and 277 V.
b. Hubbell; HPL1221PL for 120 V and 277 V.
c. Leviton; 1221-PLR for 120 V, 1221-7PLR for 277 V.
d. Pass & Seymour; PS20AC1-PLR for 120 V.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "ON."

D. Key-Operated Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 2221L.
b. Hubbell; HBL1221L.
c. Leviton; 1221-2L.
d. Pass & Seymour; PS20AC1-L.

2. Description: Single pole, with factory-supplied key in lieu of switch handle.

2.7 WALL PLATES

A. Single and combination types to match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: 0.035-inch thick, satin-finished stainless steel.
3. Material for Unfinished Spaces: Galvanized steel.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, die-cast aluminum with lockable cover.

2.8 FLOOR SERVICE FITTINGS

A. Type: Modular, flush-type, dual-service units suitable for wiring method used.

B. Compartments: Barrier separates power from voice and data communication cabling.

C. Service Plate: Rectangular, die-cast aluminum, solid brass with satin finish.

D. Power Receptacle: NEMA WD 6 configuration 5-20R, gray finish, unless otherwise indicated.

2.9 FINISHES

A. Color: Wiring device catalog numbers in Section Text do not designate device color.

1. Wiring Devices Connected to Normal Power System: As selected by Architect, unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

B. Coordination with Other Trades:

1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted provided the outlet box is large enough.

D. Device Installation:

1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.

H. Adjust locations of floor service outlets to suit arrangement of partitions and furnishings.

3.2 IDENTIFICATION

A. Comply with Division 26 Section "Identification for Electrical Systems."

1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Test straight blade for the retention force of the grounding blade according to NFPA 99. Retention force shall be not less than 4 oz.

END OF SECTION 26 2726

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 Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes individually mounted enclosed switches and circuit breakers used for the following:

1. Motor and equipment disconnecting means.

B. Related Sections include the following:

1. Division 26 Section "Wiring Devices" for attachment plugs, receptacles, and toggle switches used for disconnecting means.
2. Division 26 Section "Fuses" for fusible devices.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

B. RMS: Root mean square.

C. SPDT: Single pole, double throw.

1.4 SUBMITTALS

A. Product Data: For each type of switch, circuit breaker, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each switch and circuit breaker.

1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:

a. Enclosure types and details for types other than NEMA 250, Type 1.
b. Current and voltage ratings.
c. Short-circuit current rating.
d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

2. Wiring Diagrams: Power, signal, and control wiring. Differentiate between manufacturer-installed and field-installed wiring.

C. Qualification Data: Submit data for testing agencies indicating that they comply with qualifications specified in "Quality Assurance" Article.

D. Field Test Reports: Submit written test reports and include the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

E. Manufacturer’s field service report.

F. Maintenance Data: For enclosed switches and circuit breakers and for components to include in maintenance manuals specified in Division 01. In addition to requirements specified in Division 01 Section "Closeout Procedures," include the following:

1. Routine maintenance requirements for components.
2. Manufacturer's written instructions for testing and adjusting switches and circuit breakers.
3. Time-current curves, including selectable ranges for each type of circuit breaker.

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 NEMA AB 1 and NEMA KS 1.

C. Comply with NFPA 70.

D. 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.

1.6 PROJECT 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.

1.7 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Fusible switches.

a. Eaton Corp.; Cutler-Hammer Products.
b. Siemens Energy & Automation, Inc.
c. Square D Co.

2. Molded-Case Circuit Breakers.

a. Eaton Corp.; Cutler-Hammer Products.
b. Siemens Energy & Automation, Inc.
c. Square D Co.

2.2 ENCLOSED SWITCHES

A. Enclosed, Nonfusible Switch: NEMA KS 1, Type HD, with lockable handle.

B. Enclosed, Fusible Switch, 800 A and Smaller: NEMA KS 1, Type HD, with clips to accommodate specified fuses, lockable handle with two padlocks, and interlocked with cover in closed position.

2.3 ENCLOSED CIRCUIT BREAKERS

A. Molded-Case Circuit Breaker: NEMA AB 1, 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. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
4. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.
5. Molded-Case Switch: Molded-case circuit breaker without trip units.

B. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.

1. Lugs: Mechanical style suitable for number, size, trip ratings, and material of conductors.
2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
3. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
4. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.

2.4 ENCLOSURES

A. NEMA AB 1 and NEMA KS 1 to meet environmental conditions of installed location.

1. Outdoor Locations: NEMA 250, Type 3R.
2. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
3. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

2.5 FACTORY FINISHES

A. Finish: Manufacturer's standard paint applied to factory-assembled and -tested enclosures before shipping.

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.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Basic Electrical Materials and Methods."

B. Enclosure Nameplates: Label each enclosure with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.4 CONNECTIONS

A. Install equipment grounding connections for switches and circuit breakers with ground continuity to main electrical ground bus.

B. Install power wiring. Install wiring between switches and circuit breakers, and control and indication devices.

C. 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 and UL 486B.

3.5 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Test insulation resistance for each enclosed switch, circuit breaker, component, and control circuit.
2. Test continuity of each line- and load-side circuit.

B. Testing: After installing enclosed switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test indicated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

C. 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. Open or remove doors or panels so connections are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each unit 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies switches and circuit breakers checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.6 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges.

3.7 CLEANING

A. On completion of installation, inspect interior and exterior of enclosures. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION 26 2816

SECTION 265100 - LIGHTING

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. Lighting fixtures with lamps and ballasts.
2. Emergency lighting units.
3. Exit signs.
4. Accessories.

B. Provide and install items as specified herein and listed on the Lighting Fixture Schedule on the drawings.

C. Furnish and install all lighting fixtures complete with lamps.

1.3 DEFINITIONS

A. BF: Ballast factor. Ratio of light output of a given lamp(s) operated by the subject ballast to the light output of the same lamp(s) when operated on an ANSI reference circuit.

B. CRI: Color rendering index.

C. CU: Coefficient of utilization.

D. LED: Light emitting diode.

E. LER: Luminaire efficiency rating, which is calculated according to NEMA LE 5. This value can be estimated from photometric data using the following formula:

1. LER is equal to the product of total rated lamp lumens times BF times luminaire efficiency, divided by input watts.

F. RCR: Room cavity ratio.

1.4 SUBMITTALS

A. Product Data: For each type of lighting fixture scheduled, arranged in order of fixture designation. Include data on features, accessories, finishes, and the following:

1. Physical description of fixture, including dimensions and verification of indicated parameters.
2. Lamps.

B. Shop Drawings: Show details of nonstandard or custom fixtures. Indicate dimensions, weights, methods of field assembly, components, features, and accessories.

C. Wiring Diagrams: Power, signal, and control wiring.

D. Source quality-control test reports.

E. Field Quality

F. Operation and Maintenance Data: For lighting equipment and fixtures to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Closeout Procedures," include the following:

1. Catalog data for each fixture. Include the diffuser, ballast, and lamps installed in that fixture.

G. Warranties: Special warranties specified in this Section.

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.

C. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

1.6 COORDINATION

A. Coordinate layout and installation of lighting fixtures and suspension system with other construction that penetrates ceilings or is supported by them, including HVAC equipment, fire-suppression system, and partition assemblies.

B. Obtain exact location of all ceiling outlets from the Architect. Coordinate with Architectural reflected ceiling plans.

C. Coordinate all lighting switch locations with Architectural drawings for exact location of doors and door swing prior to roughing in.

1.7 WARRANTY

A. Special Warranty for LED Fixtures: Manufacturer's standard form, in which the LED fixture manufacturer agrees to repair or replace LED components that fail in materials or workmanship within specified warranty period.

1. LED Fixtures: Five year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FIXTURES AND COMPONENTS, GENERAL

A. Recessed Fixtures: Comply with NEMA LE 4 for ceiling compatibility for recessed fixtures.

B. LED Fixtures: Comply with IESNA LM-79 and LM-80.

C. Metal Parts: Free of burrs and sharp corners and edges.

D. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

E. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

F. Reflecting surfaces shall have minimum reflectance as follows, unless otherwise indicated:

1. White Surfaces: 85 percent.
2. Specular Surfaces: 83 percent.
3. Diffusing Specular Surfaces: 75 percent.
4. Laminated Silver Metallized Film: 90 percent.

G. Plastic Diffusers, Covers and Globes:

1. Acrylic Lighting Diffusers: 100 percent virgin acrylic plastic. High resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.

a. Lens Thickness: At least 0.125 inch minimum unless different thickness is scheduled.
b. UV stabilized.

2. Glass: Annealed crystal glass, unless otherwise indicated.

2.2 EXIT SIGNS

A. General: Comply with UL 924; for sign colors and lettering size, comply with authorities having jurisdiction.

B. Internally Lighted Signs:

1. Lamps for AC Operation: Light-emitting diodes, 70,000 hours minimum of rated lamp life.

2.3 LED LIGHTING FIXTURES AND COMPONENTS

A. LED: Color temperature as indicated, CRI 80 (minimum) tested in accordance with LM-80, TM21. Projected life of over 50,000 hours at 50° C.

B. Drivers: Constant current driver at 350 mA, 100-277V.

C. LED Lighting Fixtures: Provide “Lighting Facts” information sheets.

2.4 FIXTURE SUPPORT COMPONENTS

A. Comply with Division 26 Section "Common Work Results for Electrical" for channel- and angle-iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.

C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.

D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated, 12 gauge.

E. Wires For Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage.

F. Rod Hangers: 3/16-inch- minimum diameter, cadmium-plated, threaded steel rod.

G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

H. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.

2.5 FINISHES

A. Fixtures: Manufacturers' standard, color as selected by Architect, unless otherwise indicated.

1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
2. Metallic Finish: Corrosion resistant.

2.6 SOURCE QUALITY CONTROL

A. Provide services of a qualified, independent testing and inspecting agency to factory test fixtures with ballasts and lamps; certify results for electrical ratings and photometric data.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.

B. Support for Fixtures in or on Grid-Type Suspended Ceilings: Support fixtures directly from building structure.

1. Install a minimum of four ceiling support system rods or wires for each fixture. Locate not more than 6 inches from fixture corners.
2. Support Clips: Fasten to fixtures and to ceiling grid members at or near each fixture corner with clips that are UL listed for the application.
3. Fixtures of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support fixtures independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.

C. Suspended Fixture Support: As follows:

1. Pendants and Rods: Where longer than 48 inches, brace to limit swinging.
2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
4. Continuous Rows: Suspend from cable.

D. Adjust aimable fixtures to provide required light intensities.

3.2 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 and UL 486B.

3.3 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Verify normal operation of each fixture after installation.

C. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify normal transfer to battery power source and retransfer to normal.

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

E. Corroded Fixtures: During warranty period, replace fixtures that show any signs of corrosion.

END OF SECTION 26 5100

SECTION 274116 – INTEGRATED AUDIOVISUAL SYSTEMS

PART 1 - GENERAL

1.1 SYSTEM DESCRIPTION

A. It is the intent of these specifications to provide a complete working audio visual system ready for the Owner's use. System acceptance shall be judged on the successful adherence to the installation instructions of this Specification.

B. Any item not specifically shown on the drawings or called for in the specifications, but normally required to conform to the intent, are to be considered as part of the Work.

C. Any given item type of equipment or material shall be the product of one manufacturer throughout the facility. Multiple manufacturers of any one item will not be permitted, unless specifically noted otherwise.

D. These specifications are equipment and performance specifications and are considered to be one all-encompassing package with the drawings. Actual installation shall be as engineered by the AV contractor with prior approval by the Design Professional.

E. Provide audio visual devices and equipment with performance levels and capacities as noted herein.

1.2 SCOPE OF WORK

A. General: Provide audio visual systems design, engineering, and installation within all phases and spaces of the Project. Systems are to include all devices, equipment, installation, programming and commissioning in accordance with requirements of the contract documents and drawings.

1. The Work detailed within the Contract Documents has been specified to meet certain requirements for performance, appearance, and costs. It shall be the responsibility of the AV Contractor to implement the guidelines and requirements contained in the Contract Documents and translate them into a complete design package containing all elements necessary for a complete, operational, and functionally integrated Audio Visual System(s).

   Provide all work as detailed in the Contract Documents as a turnkey installation including all material, labor, engineering, warranties, taxes, freight, and permits. Only items and requirements specifically stated to be provided by others shall not be a requirement for this Section of the Work.

B. Work Included:
   1. Base AV Work

a. Refer to Sections listed in Part 2 for scope requirement and system descriptions for each System Type.

C. Work Specified Elsewhere
1. Installation of raceway, pull-boxes, plywood backboards and floor-boxes (provided under electrical Work). Coordination is required within the design to verify the appropriate raceways are in place.
2. Cutting, patching and painting of walls, unless damaged performing the work described herein.

D. Coordinated Work
1. Coordinate with related trades to schedule the Work and ensure a complete installation in accordance with the schedule outlined by the Owner.
2. Installation of support structure. Coordination is required within design to verify size and overall dimensions required.

E. Design Intent
1. The design intent of the system may require equipment not listed in the attached spreadsheet, but are indicated elsewhere in the contract documents, in either the drawings or the written specification or is required for normal or intended operation of the system. It is the sole responsibility of the Bidder to reconcile the contract documents with the equipment and labor required for this project. In all cases, the most stringent requirements of the contract documents shall be followed.
2. The AV Contractor is to research, design and engineer a complete working and turnkey solution. That solution is to be provided as a part of this bid return with all components of that solution identified inclusive of Manufacturer, Model Number, Quantities (either provided in these documents herein or required for the AVC proposed solution), itemized costs, associated cut sheets as well as a system diagram equal to the level of detail of other fully designed systems within this specification.
a. In this situation, the bidder is required to submit 3 references of similar size and complexity within the last 3 years in support of the components identified to include Contact Name, Address, Phone Number and detailed description of the system and application.
3. No claims for additional equipment required will be allowed if the sole reason for such claims is that the equipment was not listed in the attached spreadsheet. It is the sole responsibility of the Bidder to verify the completeness of the proposed solution included in the AVC's bid.

1.3 RELATED DOCUMENTS

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

B. Refer to the following Sections for specifications related to the Work:
1. Section 26 05 00 – Common Work Results for Electrical
2. Section 27 05 26 – Grounding and Bonding for Communications Systems

C. Refer to the following Sections for specifications for the Data Network:
1. Section 27 21 00 – Data Communications
2. Section 27 21 12 – Data Communications Network Security Appliances

3. Section 27 21 26 – Data Communications Network Management
4. Section 27 21 29 – Data Communications Switches

D. Refer to the following standards for performance verification related to the Work:
1. INFOCOMM 10-201X, AV Systems Performance Verification

1.4 DOCUMENT ORDER OF PRECEDENCE

A. While it is the AV subcontractor's responsibility to verify the completeness and accuracy of their proposed turnkey solution, the system specifications and AV system drawings shall be used as initial primary reference in resolving conflicts. Any unresolvable conflicts to trigger RFI for AV consultant input.

1.5 RELATED WORK

A. The CM's General Conditions shall be considered part of this Specification. Unless this Section contains statements, which are more definitive or more restrictive than those contained in the Contractor's General Conditions, this Specification shall not be interpreted as waiving or overruling any requirements expressed in the General Conditions.

B. AV Contractor shall coordinate with CM on raceway/junction box locations for audio visual equipment and routing of audio, video, control, and power cables/raceway from equipment, terminal and pull boxes to system equipment racks. Including but not limited to attending coordination meetings, weekly project meetings, and participating in coordination DWG process.

C. Related Work: Equipment and materials provided and installed by others, unless otherwise shown in this Section or the Drawings, shall include but are not limited to:
1. Section 26 05 00 – Common Work Results for Electrical
2. Section 26 05 26 – Grounding and Bonding for Electrical Systems
3. Section 26 05 29 – Hangers and Supports for Electrical Systems
4. Section 26 05 33 – Raceway and Boxes for Electrical Systems
5. Section 26 05 36 – Cable Trays for Electrical Systems
6. Section 26 09 23 – Lighting Control Devices
7. Section 26 09 43 – Network Lighting Controls

1.6 DEFINITIONS

A. Regardless of their usage in codes or other industry standards, certain words or phrases as used in the Drawings or Specifications for the Work, shall be understood to have the specific meanings as ascribed to them in the following list:
1. "Circuit" – Any specific run of circuitry
2. "Circuitry" – Any Work which consists of wires, cables, raceways, and/or specialty wiring method assemblies complete with associated junction boxes, pull boxes, outlet boxes, joints, couplings, splices, and connections except where limited to a lesser meaning by specific description.

3. "Concealed" (as applied to circuitry) – Covered completely by building materials, except for penetrations (by boxes and fittings) to a level flush with the surface as necessitated by functional or specified accessibility requirements.
4. "Exposed" (as applied to circuitry) – Not covered in any way by building materials.
5. "Normal Work Conditions" – Locations within building confines that are not damp, wet, or hazardous and that are not used for air handling.
6. "Patch Panel" – A System of terminal blocks, patch cords, and backboards that facilitate administration of cross-connecting cables.
7. "Raceway" – Any pipe, duct, extended enclosure, or conduit (as specified for a particular System) which is used to contain wires and which is of such nature as to require that the wires be installed by a "pulling in" procedure.
8. "Riser" – Shall refer to the portion of the installation that transmits between building floors (or between Audio Visual Systems rooms), also referred to as "Backbone Cabling".
9. "Audio Visual Closet" – The enclosed area or room specifically designated for the routing, termination, and/or cross connecting of Audio Visual Systems cable (i.e. riser cable) to other Audio Visual Systems cable and/or equipment.
10. "AV Systems Control Room" and/or "AV Systems Headend" – The enclosed area or room specifically designated for the routing, termination, and/or cross connecting of Audio Visual System cable (i.e. riser cable) to other Audio Visual System cable, and/or equipment and racks.
11. "AV System(s)" – Audio Visual System(s), includes all components contained herein that work in conjunction to create and completely integrated and fully functioning system as described within the Drawings and Specifications
12. "Audio Visual Systems Wiring" – see "Circuitry"
13. "Audio Visual Systems Work" – See "Scope of Work"
14. "Standard" (as applied to wiring devices) – Not of a separately designated individual type.
15. "Subject to Mechanical Damage" – Exposed within 2,200 mm of the floor in mechanical rooms, manufacturing spaces, vehicular spaces, or other spaces where heavy items are moved around or rigged as a common practice or as required for replacement purposes.
16. "System" – See "AV Systems"
17. "Wiring" – see "Circuitry"
18. "AVC" – Audio Visual Systems Contractor

B. Where the word "conduit" is used without specific reference to type, it shall be understood to mean "raceway".

C. Reference to "U.L. (Materials Construction) Standards" shall mean the "Standards for Safety" published by Underwriters Laboratories, Inc.

1.7 REFERENCES

A. The Audio Visual Systems shall be installed in accordance with the latest applicable revisions pertaining to all applicable national, state, and local codes and standards including, but not limited to the following:
   1. Local Governing Authorities Having Jurisdiction
   2. Any portion of the audiovisual work not subject to the requirements of an electrical code published by a specific authority having jurisdiction over such work shall be governed by the

National Electrical Code and any and all applicable sections of the National Fire code, as published by the National Fire Protection Association.

3. Installation procedures, methods and conditions shall be in compliance with the latest requirements of the Federal Occupational Safety and Health Administration (OSHA), the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA).
4. The AV Contractor is responsible for all costs incurred to meet these codes and conditions.
5. Additional codes and requirements pertaining to the work:
    a. NFPA-72 National Fire Alarm and Signaling Code
    b. International and National Electric Codes (IEC/ NEC)
    c. IEC 60268-16 Third Edition 2003-05 Objective rating of speech intelligibility
    d. ANSI/Infocomm
        1) 10:2013 Audiovisual Systems Performance Verification
        2) 1M:2009 Audio Coverage Uniformity Standard in Enclosed Listener Areas
        3) 2M:2010 Standard Guide for Audiovisual Systems Design and Coordination
        4) 3M:2011 Projected Image System Contrast Ratio
        5) X3T9.5 FDDI
        6) X3T9.5 CDDI
    e. Sustainable Technology Environments Program
    f. Underwriters Laboratories, Inc. (UL)
    g. Society of Motion Picture and Television Engineers (SMPTE)
    h. Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual - latest edition.
    i. ANSI/TIA/EIA-568-B - Commercial Building Telecommunications Cabling Standard
    j. ANSI/TIA/EIA-569 - Commercial Building Standards for Telecommunications Pathways and Spaces
    k. ANSI/TIA/EIA-606-A. Administration Standard for Commercial Telecommunications Infrastructure
    l. TIA-607-A, Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
    m. EIA RS-232 Serial Communications Electrical Interface
    n. EIA RS-310-C Racks, Panels and Associated Equipment
    o. FCC Part 15
    p. FCC Part 68
    q. IEEE 802.3
    r. IEEE 802.5
    s. Article 770 Optical Fiber Cables
    t. Article 800 Communications Circuits
    u. NFPA 70 National Electrical Code
    v. NFPA 75 Protection of Electronic Computer / Data Processing Equipment

1.8 AV CONTRACTOR'S GENERAL CONDITIONS

A. The AV Contractor represents that they are familiar with, and have expertise in the Work of this nature and scope. The AV Contractor further agrees that they shall provide all Work as may be required to make a complete job of that which may not be fully defined in the Contract Documents.

B. The AV Contractor shall comply with all of the regulations, including safety regulations of national, city, local and other government agencies having jurisdiction concerning the work of the AV Contractor. The AV Contractor shall give all notices and comply with all laws, ordinances, codes, rules, and regulations bearing on the conduct of the Work. If the AV Contractor performs any work, which is contrary to such laws, ordinances, codes, rules and regulations, they shall make all changes for compliance and bear all associated costs.

C. The AV Contractor shall be responsible to provide and maintain a storage facility. If this storage facility is required to be on-site it shall be the AV Contractor's responsibility to coordinate the size and spatial requirements with the Owner and CM. The AV Contractor shall assume full responsibility for the storage facility and all contents, unless otherwise indicated by the Owner.

D. The AV Contractor shall provide all protection necessary to safeguard their work from damage by their operations and the operations of others. Unless the AV Contractor proves to the Owner’s satisfaction that the Work has been damaged by others, the AV Contractor shall promptly repair, adjust, and clean all defective installations and bear all associated costs.

E. All of the AV Contractor's work shall be tested and inspected by all authorities having jurisdiction and in accordance with all Specifications. The AV Contractor shall coordinate and cooperate fully and shall provide at no additional cost to the Owner, manpower, blueprints, facilities, scaffolds, etc. to reasonably assist the inspectors.

F. The project documentation is, in general, diagrammatic and/or developed to communicate design intent. The AV Contractor shall coordinate the installation of all devices and/or equipment with the Owner and CM prior to installation based on the existing field conditions.

G. The AV Contractor shall examine the site and the Contract Documents and review with the Owner and CM the designated areas of access, delivery, and storage for the AV Contractor's use. The AV Contractor agrees that such areas are satisfactory and sufficient for their needs in the completion of their work and in conformance with the terms of this Contract.

H. The Owner reserves the right to furnish any materials necessary for the Project.

I. All permits required for any part of the AV Contractor's work shall be procured and paid for by the AV Contractor. The AV Contractor shall determine all permits required and transmit this information to the CM.

J. The Owner shall provide to the AV Contractor AutoCAD backgrounds for all required floor plans for the facility. All pre-fabrication and record drawings required for the Project and as stated herein, shall be completed within the latest version of AutoCAD.

K. The AV Contractor, upon receiving notice from Owner that the AV Contractor has furnished inferior, improper or unsound work or materials (including equipment), or work or materials at variance with that which is specified, will, within 24 hours, proceed to remove such work or materials and make good all other work or materials damaged thereby, and, at the option of the Owner, the AV Contractor shall immediately replace such work or materials with work or materials as specified. The removal, replacement, and repair shall be performed at such times and with manpower sufficient, in the judgment of the Owner, so as to avoid disturbance to occupants, or other ongoing work for the Project.

1. If the AV Contractor does not remove such unsound Work within a reasonable time, the Owner may remove it and may store the material at the expense of the AV Contractor. If the AV Contractor does not pay the expenses of such removal within ten (10) days' time thereafter, the Owner may, upon written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the AV Contractor and all expenses of the sale.

L. The AV Contractor shall remove all previously installed AV equipment from the spaces as part of the process to install the new room equipment systems. Only equipment utilized in the final operational systems to remain.

M. The Owner shall have the authority at all times, until final completion and acceptance of the Work, to inspect and reject work and materials which in its judgment are not in conformity with the Drawings and Details, Room Data Sheets and Specifications, and its decision in regard to character and value of Work shall be final and conclusive on both contracting parties. If the Owner permits said Work or materials to remain, the Owner shall be allowed the difference in value or shall at its election have the right to have said Work or materials repaired or replaced, as well as the damage caused thereby, at the expense of the AV Contractor, at any time within one (1) year after the completion of the entire project, or within such longer period as may be covered by any guaranty; and neither payments made to the AV Contractor, nor any other acts of the Owner, shall be construed as evidence of acceptance, waiver, or estoppels.
   1. Any expense incurred by the Owner in connection with the foregoing, shall be borne by the AV Contractor, and the Owner may withhold money due to the AV Contractor or recover money already paid to the AV Contractor, to the extent of such expense.

N. It shall be understood that the Room Data Sheets, Specifications and Drawings are complementary. Where there are conflicts within the documents, the overall design intent shall govern.

O. To the extent that they govern the Work, the contract documents, Specifications and Drawings also govern change order Work, if any.

P. The Drawings for the Work utilize symbols and schematic diagrams that have no dimensional significance. The Work shall be installed to fulfill the diagrammatic intent expressed on the Drawings, field layouts, and shop drawings of all trades.
   1. AVC is required to supply fully dimensioned elevations and mounting details for all AV components within a space for client and consultant approval.
      a. Compliance will require field measuring of spaces and comprehensive understanding of any existing equipment which is to be reused in the new system.

Q. Certain details appear on the Drawings for the Work that are specified with regard to the dimensioning and positioning of the Work. These are intended only for general information purposes. They do not obviate field coordination for individual items of the indicated Work.

R. Information as to general construction and architectural general construction and architectural features and finishes shall be derived from the structural and architectural drawings and specifications, and may require ongoing coordination with the Architect and CM.

S. Ratings of devices, materials, and equipment specified without reference to specific performance criteria shall be understood to be nominal or nameplate ratings established by means of industry standard procedures.

T. It is the intent of the Drawings and Specifications to provide complete operating Audio Visual Systems. All Work necessary to provide such a System shall be performed. Any discrepancies shall be brought to the Consultant's attention.

U. The Work called for under this Contract shall be carried on simultaneously and/or in the appropriate sequence with the Work of other trades and Owner functions in such a manner as to not delay the overall progress of the construction project. The AV Contractor is responsible for all coordination of the Work with other trades.

V. Include in the Work all necessary supervision and issuing of all coordination information to any other trades who are supplying work to accommodate the Audio Visual Systems installation.

W. For items of equipment which are to be installed but not purchased as part of the Work, the Work shall include:
1. Coordination of delivery
2. Unloading from delivery trucks
3. Safe handling and field storage up to the time of permanent placement in the project
4. Correction of any damage to the item(s)
5. Mounting in place and connection(s) as specified

X. Items which are to be installed, but not purchased as part of the Work shall be carefully examined upon delivery to the project. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of the Work will be considered only if presented in writing within one (1) week of the date of delivery to the project of the items in question. The Work includes all procedures necessary to put in satisfactory operation all items for which no claims have been submitted as outlined above.

1.9 WARRANTY AND MAINTENANCE

A. AV Contractor shall provide a one (1) year warranty for the Work. The warranty shall cover all Work, Systems, and subsystems against defects in materials and workmanship. The Work as specified herein, including all materials and labor, but excepting any existing devices and equipment which are incorporated in the completed Work, shall be warranted to be free from defects in design, workmanship, and materials. Further, the AV Contractor shall warrant that the completed Systems, including all components (except those, which are existing or provided by others), are of sufficient size and capacity to fulfill the requirements of the Specifications.

B. In order to maintain certain manufacturer's warranties, system equipment must be installed, aligned and serviced by those installers recognized and authorized by said manufacturers to be capable of performing such duties. If a certain installer is not so authorized by a particular manufacturer, it is solely their responsibility to make such arrangements to come into such compliance and they shall bear all costs and consequences thereof.

C. The warranty shall be valid and initiated following the date of System acceptance by the Consultant and/or Owner. System acceptance shall commence when all parts, components, sub-Systems, and Systems have been tested, shown to be working in accordance with the Specification, and approved by the Owner

D. Warranty Service:
   1. In the event that defects in the materials and/or workmanship are identified during the warranty period, the AV Contractor shall provide all labor and materials as may be required for prompt correction of the defect.
   2. All manufacturers' equipment warranties shall be activated in the Owner's name and shall commence on the date of system acceptance. In the case of AV Contractor-modified equipment, the manufacturer's warranty is normally voided. In such cases, the AV Contractor shall provide the User with a warranty equivalent to that of the original manufacturer.
   3. All repairs required following Substantial Completion of the rooms shall be scheduled at the User's convenience. In no case will the User allow such repairs to interrupt or delay a regularly scheduled event. Notwithstanding the above, all repairs within the regular period of usage must be completed within 24 hours of notification of a failure; 2nd and /or 3rd shift warranty repair activity should be anticipated.
   4. Provide written notice to the Owner documenting any Work performed during the warranty period, including any preventative maintenance Work performed.
   5. Provide loaner equipment that is fully compatible with the Audio Visual Systems for any equipment not field repairable.
   6. Loaner equipment for components that must be shipped to/from the manufacturer or distributor shall be on site and operational within 48 hours of the component failure. Furnish lists of equipment that will require shipment from the manufacturer or distributor and lead times associated with that equipment.

E. The Bidder shall offer a separate annual service contract, covering all installed systems. The frequency of those visits, as identified and determined by the Bidder and there experience, shall be at regular intervals, in order to perform operational checks of the system(s) and equipment, to clean and service computers, tape machines, and other critical items, to lubricate moving parts as recommended by respective manufacturers and to adjust and align displays and other hardware to insure maintenance of optimum graphical performance. If the Bidder believes certain equipment may require more frequent (or less frequent) servicing that should be identified by component. The service contract shall commence immediately after expiration of the warranty period. A "per-component" price for the service contract shall be submitted with the bid. Provide a detailed plan for and schedule for all suggested periodic maintenance with the bid and describe the potential impact of these tasks with the operation of the room.

F. The Bidder shall also submit separate pricing for other, non-routine, emergency, "on-call" service visits and an "in-shop" hourly rate for repair and maintenance work.

G. Service and service contract related costs FOR YEAR 1 shall be incorporated with the costs for the system's base-bid.

H. Additional terms – Warranty / Extended Service Options must include the following (at a minimum):
   1. Phone time to live agent: <60 seconds
   2. 1-hour Callback time

3. Unlimited Remote Technical Support
4. Emergency On-site Support: 4-hour SLA for calls received by 1pm
5. Standard On-site Support:
    a. 4-hour SLA for calls received by 1pm (First 6 months)
    b. Next Business Day SLA After Month 6
6. Unlimited Emergency and Standard Service Visits
7. Year 1 to include 1 PM Vist
8. Years 2 and 3 to include 2 PM Visits
9. Equipment Repair – As per Manufacturer Warranties
    a. However, all replacement parts to be overnighted or same-day when possible
10. Provide preferred Hourly Support Rates
11. Provide pricing (alternate) for 3-month full time dedicated resource following system acceptance

1.10 PROJECT MANAGEMENT

A. The AV Contractor shall provide a Project Manager to oversee and coordinate all activities on the Project

B. Project Manager's Duties and Responsibilities:
    1. The AV Contractor shall provide to the Owner, as a part of the prefabrication submittal, the name of the Project Manager that will provide all duties and responsibilities as specified herein, during the term of the project.
    2. The Project Manager shall maintain the ability of making all managerial decisions on behalf of the AV Contractor on a day-to-day basis, and shall retain the authority of accepting notices of deduction, inspection reports, payment schedules and any other project related correspondence on behalf of the owner.
    3. The Project Manager shall schedule and attend project management meetings, during which time all System related issues are discussed, scheduled, confirmed, and/or resolved.
    4. The Project Manager shall be available during normal business hours (0800 hours to 1700 hours) within two (2) hours by telephone during the term of the project.
        a. After normal business hours, the Project Manager shall be available within four (4) hours by telephone during the term of the project.
        b. In the event that the Project Manager is not available within the allotted time frame, the AV Contractor may designate another employee to temporarily act as the Project Manager in all correspondence with the Owner.
        c. The AV Contractor shall ensure that any individual temporarily assuming the duties of the Project Manager is at equal or higher level in the AV Contractor's managerial chain of command.
    5. Upon notification by the Owner, of any project related installation issue, or issue that may contradict the Specifications as stated herein, the Project Manager shall respond to such issue, verbally and/or in writing within an eight (8) hour period
        a. Responses to such issues as stated above shall include a clear understanding of the issue, along with a tentative plan of action, reflecting milestones and/or deadlines to resolve the issue.

b. Where appropriate, based on the overall importance of the project issue, the Project Manager shall follow-up their initial response with a written response to the issue within 24 hours of identification of the issue.

6. On a PER ROOM BASIS and prior to the initiation of the Work, the Project Manager shall submit a schedule reflecting key milestones of the Work, including but not limited to the following:
   a. Bid award
   b. Kick-off meeting
   c. Prefabrication submittal
   d. Ordering, delivery, and installation
   e. Shop Fabrication
   f. Shop Acceptance Testing
   g. Equipment delivery to Site
   h. Project management schedule
   i. Payment schedule
   j. Site Installation Schedule inclusive of Hardware and Software
   k. Systems training
   l. Delivery of As-Built documentation
   m. Delivery of Operations & Maintenance Manuals
   n. Final System test
   o. Acceptance of System
7. The Project Manager shall coordinate the schedule with overall project milestone dates as set by owner and CM. The Project Manager shall update the schedule on a weekly basis to reflect the status of each key milestone as the Work progresses.
8. As the System installation progresses, the Project Manager shall be capable of discussing any/or all of the above mentioned items at the request of the Owner, and shall address each item, as it relates to the current status of the Work.

1.11 SUBMITTALS

A. Furnish submittals in accordance with general requirements specified in Division 1, and Construction Managers submittal procedures
   1. All submissions are to be processed via the CM and then forwarded to the A/E team for tracking and response purposes

B. Prefabrication Submittals
   1. Submit pre-fabrication submittals in accordance with the Owner's construction schedule.
   2. Pre-fabrication submittals shall consist of product data, shop drawings, samples, and a detailed completion schedule. Partial submittals will not be accepted without prior written approval from the Architect.
   3. Pre-fabrication submittals shall be furnished in electronic formats as defined by the General Conditions under Part 1 of the Project Specifications.
   4. No portion of the Work shall commence nor shall any equipment be procured until the Architect has approved the pre-fabrication submittals in writing.
   5. A letter of transmittal identifying the name of the Project, AV Contractor's name, date submitted for review, shall accompany pre-fabrication submittals and a list of items transmitted.

C. Product data required as part of the pre-fabrication submittal shall include the following:
   1. Submit manufacturer's product data sheets for all materials and equipment proposed for use on the project sorted by room and indexed.
   2. Submit manufacturer's product data sheets for all fire stopping materials proposed for use on the project.
   3. Equipment schedules listing all System components, manufacturer, model number and the quantity of each
   4. General functional descriptions for each System
   5. Manufacturer's data specification sheets for all System components, including any warranty information.
      a. Mark each product data sheet to show applicable choices and options (sheets containing more than one device or component model number shall be clearly marked to delineate items included in the Work)
      b. Manufacturer's Data: For each manufactured device submit manufacturers' specifications and print photograph of the proposed device. Include engineering descriptions, principle of operation, application, and proposed model, style or size clearly indicated.
   6. A complete list of cable and wiring types, sizes, manufacturer, and model number
   7. A complete list of finishes and sample graphics, including custom art work and custom graphics (if applicable)
   8. List of parts inventory to provide manufacturer recommended service and maintenance of the Work

D. Shop Drawings shall include the following:
   1. AVC is required to supply fully dimensioned elevations and mounting details for all AV components within a space for client and consultant approval.
      a. Compliance will require field measuring of spaces and comprehensive understanding of any existing equipment which is to be reused in the new system.
      b. Compliance will require comprehensive understanding on existing and re-usable cable pathways
   2. Detailed plan views and elevations of AV Control and/or Head-end rooms (in addition to relevant telecommunications rooms) showing raceway, sleeves, cable tray, cable paths, equipment racks, equipment cabinets, termination blocks, power receptacles and grounding bus bars.
   3. Drawings to show evidence of coordination with other trades.
   4. Cable run sheets denoting cable type, signal type, termination type, cable number designation, start point and end point.
   5. Cable termination schedules showing cable transmission and device location. Provide schedules in printed and electronic format.
   6. Floor plan drawings indicating device locations with device legends
   7. System riser diagram with all devices, wire runs, conduit sizes required, and wire designations
   8. Schematic block diagrams for each System showing all equipment, interconnects, data flow, etc.
   9. Wiring diagrams for each subsystem defining the interconnection of all inputs and outputs for all equipment.
   10. Fabrication shop drawings for all custom equipment (if applicable)
   11. Plans and elevations of the Audiovisual equipment racks and/or custom furniture (including consoles, desks, and lecterns) quantifying all equipment to be mounted therein for review and approval by Owner.

12. The AV Contractor shall submit samples of any equipment components upon request of the Owner.
13. Samples submitted shall be the latest version of equipment.
14. It is the responsibility of the AV Contractor to confirm all dimensions, quantities, and the coordination of materials and products supplied by the AV Contractor with other trades. Approval of shop drawings containing errors does not relieve the AV Contractor from making corrections at their expense.

E. Record Documentation shall include all information required in the Pre-fabrication Submittals but revised to reflect "as installed" conditions.
   1. General Description and Requirements
      a. Submit Record Documentation in accordance with the CM's construction schedule.
      b. Record Documentation shall consist of Record Drawings and Operation and Maintenance Manuals.
      c. Provide a letter of transmittal with Record Documentation identifying the name of the Project, AV Contractor's name, date submitted for review, and a list of items transmitted.
      d. Prior to the final acceptance of the Work, submit two draft sets of the Record Drawings portion of Record Documentation to the Architect. The draft copy shall be used during the final acceptance testing by the Architect.
      e. Update all record documentation to reflect changes or modifications made during final acceptance testing as required and submit three blue/black lines and one reproducible set.
      f. Provide cable test results for all cables installed under this Work, tested and documented as described herein.
      g. Provide Owner with Operation and Maintenance Manuals including wiring diagrams, parts lists, shop drawings and manufacturers' information on all equipment and cables provided by the AV Contractor. Manuals shall be provided in a high quality, 3-ring binder and completely indexed.
      h. Provide Owner with all systems programming on electronic media. All programming and source code is to be considered as a work for hire and will be the property of the Owner upon completion of the project. All code must be provided uncompiled.
   2. Record Drawings
      a. Produce all Record "as-built" Drawings using the latest version of AutoCAD. Record drawings shall, at a minimum, include the following:
         1) Floor plan drawings indicating device locations, with device legends indicating manufacturers and model numbers for each device
         2) Floor plan drawings indicating wire routing, wire routing shall be delineated in straight line runs and be tagged with cable identification and terminal strip numbers to coincide with the installation
         3) Mounting details for all equipment and hardware
         4) Functional block diagrams for each subsystem
         5) Wiring details showing rack elevations, equipment wiring and terminations, and inter-rack wiring
         6) Wiring diagrams for all custom circuitry including interfaces to various control output controlled devices, lighting control interfaces, projection screens, operable window treatments, motorized doors/partitions, etc.
         7) Wiring diagrams for each System, wiring diagrams shall be identical to those laminated and located within the door of the equipment room where the subject equipment racks are located.

8) Typical point-to-point wiring diagrams for each piece of equipment and groups of equipment within the System
9) Layout details for each riser location, including Audiovisual panels, power supplies, junction boxes, conduit, and any other Audiovisual related equipment

3. Operation and Maintenance Manuals
   a. Operation and Maintenance Manuals shall apply to all Audio Visual related devices, equipment and software modules.
   b. Operation and Maintenance Manuals shall be formatted as follows:
      1) Bind each manual in a hard-back loose-leaf binder.
      2) Identify each manual's contents on the cover.
      3) Provide a table of contents and tabulated sheets for each manual. Place tab sheets at the beginning of each chapter or section and at the beginning of each appendix if applicable.
      4) Any hardware manual demonstrating more than one model number of device on any one page shall be clearly marked as to delineate which model has been implemented in the Work.
   c. Operation and Maintenance Manuals shall include, at a minimum, the following:
      1) Operational description of each subsystem
      2) Detailed programming descriptions for each subsystem
      3) Explanations of subsystem interrelationships
      4) Electrical schematics for each piece of equipment specified
      5) Power-up and power-down procedures for each subsystem
      6) Description of all diagnostic procedures
      7) A menu tree for each subsystem
      8) Setup procedures for each component of the subsystems
      9) A list of manufacturers, their local representatives, and subcontractors that have performed Work on the Project
      10) Installation and service manuals for each piece of equipment
      11) Maintenance schedules for all installed components
   d. Operation and Maintenance Manuals shall include a separate section for each software program incorporated into the Project. The software section shall include, at a minimum, the following information:
      1) Definitions of all software related terms and functions
      2) Description of required sequences
      3) Directory of all disk files
      4) Description of all communications protocols, including data formats, command characters, and a sample of each type of data transfer
      5) Instructions for manufacturer supplied report generation
      6) Instructions for custom report generation
      7) Database format and data entry requirements

F. Procedure for Resubmitting
   1. Make corrections or changes in O & M and/or Record Drawings as required by the Architect and resubmit when the Architect's stamp requires re-submittal.
   2. Clearly identify changes made other than those specifically requested by the Architect when resubmitting Record Drawings. Changes shall be clouded or similarly highlighted as coordinated with the Architect. Only changes that have been specifically requested by the Architect or have been clouded by the AV Contractor will be reviewed on resubmittals.

3. Any drawing sheets added to the resubmittal shall be clearly identified and clouded, and shall not change the sheet numbering scheme for previously issued Record Drawings.
4. The AV Contractor shall be responsible for any delays caused by the re-submittal process.
5. Re-submittal Review Fees
   a. If the Architect rejects the AV Contractor's Record Submittal (Rejected, Revise, and Resubmit) more than two times, the Architect will be compensated for all subsequent reviews, whether partial or comprehensive. The amount of such compensation will be incorporated by Change Order and withheld from the AV Contractor's Application for Payment.

G. Status Reports
1. After the award of contract, the AV Contractor is responsible for providing weekly status reports outlining his progress on the project. These reports should include information on the work completed during the week, the work to be completed during the upcoming week and any potential scheduling issues. The following should be included in this Status Report:
2. Expected date of project submittals, including equipment cut sheets, shop drawings, control system interface designs, etc.
3. Anticipated completion date and percentage complete of in-house rack fabrication and testing, prior to shipping to the job-site.
4. Anticipated completion date and percentage complete of control system programming, prior to shipping to the job-site.
5. Schedule and percentage complete of on-site wiring and supervision.
6. Schedule and percentage complete of on-site installation.
7. Schedule for owner training.
8. Schedule for systems checkout and turnover to the Owner.

1.12 QUALITY ASSURANCE

A. Installer Training Process: – AV Contractor's labor force shall have certified installers who attended training programs of the proposed system preparing them to perform the work.

B. The Installer for this Project is to be certified by all manufacturers of the installed equipment that the AV Contractor proposes.

C. Registered and Certified supervisors- AV Contractor must have all supervisory personnel certified for the type of work they are overseeing (installation and design) from Infocomm International (CTS-I/D)

D. The AV Contractor shall also have personnel on staff and available to work on this project with the following Certifications:

E. Cisco CCNA – Routing & Switching

F. Microsoft MCSE - Productivity

G. In addition, for any projects employing wireless data, the AV Contractor shall also have personnel with the following certifications:

H. Cisco CCNA – Wireless

I. Microsoft MCSE - Mobility

J. Quality assurances for audio visual systems includes a multi-step program consisting of pre-qualification procedure for manufacturers and installation specialists; products phase; installation; operating instruction and training; and the submission of maintenance and operating manuals.

K. The AV Contractor shall have local in-house engineering and project management capabilities consistent with the requirements of the Work.

L. By submitting a bid, the AV Contractor thereby certifies that it is qualified in all areas pertaining to, directly or indirectly, the Work. In the event the AV Contractor becomes unable to complete the Work in accordance with the Contract Documents, or the satisfaction of the Owner, it shall be the responsibility of the AV Contractor to retain the services of applicable manufacturers' representatives to expeditiously complete the Work in accordance with the Owner's construction schedule with no additional cost to the Owner.

M. The AV Contractor shall provide factory-certified technicians to install, commission, and maintain the Work. All installing personnel shall be licensed as required by local and/or state jurisdictions.

N. The AV Contractor shall ensure compliance with, and have a thorough understanding of, all local codes and contract conditions pertaining to this Project.

O. The AV Contractor shall maintain an inventory of spare parts and other items critical to System operation and as necessary to meet the emergency service requirements of this Project.

P. Product Standards
   1. All equipment and materials for contained herein shall be the products of recognized manufacturers and shall be new.
   2. New equipment and materials shall:
      a. Be Underwriters Laboratories, Inc. (U.L.) listed and approved where specifically called for; or where normally subject to such U.L. labeling and/or listing services.
      b. Be without blemish or defect.
      c. Be products that meet with the acceptance of the agency inspecting the Audio Visual Systems work.
   3. It is the intent of these specifications that wherever a manufacturer of a product is specified, and the terms "other approved" or "approved equal" are used, the substituted item must conform in all respects to the specified item. Consideration will not be given to claims that the substituted item meets the performance requirements with lesser construction. Performance as delineated in schedules and in the specifications shall be interpreted as minimum performance.
   4. Substituted equipment or optional equipment, where permitted and approved, must conform to space requirements. Any substituted equipment that cannot meet space requirements, whether approved or not, shall be replaced at the AV Contractor's expense. Any modifications of related Systems as a result of substitutions shall be made at the AV Contractor's expense.
   5. The approval of shop drawings, or other information submitted in accordance with the requirements hereinbefore specified, does not ensure that the Audiovisual Consultant, Architect, or the Owner attests to the dimensional accuracy, dimensional suitability of the material, or mechanical performance of equipment. Approval of shop drawings does not invalidate the Drawings and Specifications.

6. Substitutions of equipment shown on the schedules or designated by model number in the specifications will not be considered if the item is not a regular catalogued item carried by the manufacturer.
7. Within the Specifications, certain manufacturers have been listed. These manufacturers are listed for example purposes (unless followed by "No Exceptions"). The AV Contractor may substitute manufacturers and models that may be more cost effective or readily available than that specified. However, all substitutions shall meet or exceed the specified functional and technical requirements. Acceptance of such substitutions is at the discretion of the Consultant and/or Owner.

1.13 Owner Furnished Equipment

A. The AV Contractor shall be responsible for obtaining any new or existing OFE equipment from the Owner. Existing equipment shall be brought back to the AV Contractor's facility where they shall ascertain that the OFE equipment is performing at or above factory specifications.

B. If existing equipment is not operating "as-new", or is missing accessories necessary to be properly integrated with the rest of the system as intended, the AV Contractor shall provide a proposal, including a time line, for returning the equipment to "as-new" condition, provide the needed accessories, arrange to have the owner replace equipment, or submit a proposal for replacement or alternative equipment.

1.14 Owner Furnished Data Network

A. For audiovisual systems that make use of an owner furnished network, the AV Contractor shall determine the following:
   1. Is the network existing, or will it be built new
   2. If it is to be new, what is the schedule to make it useable so that the AV Systems can be deployed and tested in a timely fashion.

B. The AV Contractor shall co-ordinate with the Owner to obtain details of the data network, and shall verify that sufficient network connectivity (both passive "infrastructure" and active switch ports with adequate bandwidth etc.) will be provided for the AV Systems to operate correctly.

C. The AV Contractor shall further co-ordinate with the Owner to verify compatibility/inter-operability between that Owner's data network and the audiovisual systems, and shall identify in writing any potential deficiencies or areas of concern, prior to commencing on-site installation.

1.15 USER TRAINING

A. The Contractor shall provide on-the-job training by a suitably qualified instructor, to personnel designated by the Owner, to instruct them in the operation and maintenance of the systems. In the event the Contractor does not have qualified instructors on staff for certain sophisticated equipment, the contractor will provide a manufacturer's representative for such instruction to the owner at no additional cost. All training shall take place after the systems are operational and accepted. There shall be a minimum of 80 hours, of end-user training included in these specification durations to be specified by Owner. Owner is to retain 10% of contract fee until completion of acceptance.

1.16 PUBLICATION

A. No information relative to the project or work, whether covered in this specification or otherwise may be released for publication without prior written consent and approval from the owner.

1.17 INFORMATION TO BE SUBMITTED 30 CALENDAR DAYS FOLLOWING NOTICE TO PROCEED

A. AV Contractor Qualifications
   1. Work specified herein shall be the responsibility of a single Audio Visual Systems AV Contractor. Bid submission shall document a minimum of five (5) years' experience in the fabrication, assembly, and installation of Systems of similar technology, complexity and size as the project specified herein. The documentation submitted shall include 3 verifiable references of projects within the last 3 years. Specific information to be provided shall be:
      a. Location
      b. Owner (inclusive of contact information)
      c. Construction Manager (inclusive of contact information)
      d. Audiovisual Consultant (inclusive of contact information)
      e. Date of Project initiation
      f. Date of Project Completion
      g. Contract Value (Contractors Value)
      h. Is there a Service Contract in place? Duration?
      i. Current relationship with owner/users

B. Equipment Costs:
   1. The bid return shall include detailed lists of all equipment to be supplied. Each piece of equipment shall be individually priced. An itemized listing is provided in Appendix A, Audiovisual Bill of Materials attached to this specification.
   2. In the event that the equipment list spreadsheet is made available to the bidders electronically, Shen Milsom & Wilke, LLC. is not responsible for any formulas that may be resident in the spreadsheet. The results of any calculations in the spreadsheet are the sole responsibility of the Bidder.
   3. Equipment costs shall reflect all required modifications and accessories. All substitutions for specified equipment shall be listed and individually priced on a separate page.
   4. Itemized equipment pricing submitted with bid returns shall also represent unit pricing for components should additions to systems requirements change after contract award.
   5. Equipment totals from each equipment list shall be entered in the Master Recapitulation of Costs form.

C. Non-Equipment Costs.
   1. Non-equipment costs shall be furnished separately on the Master Recapitulation of Costs form. These non-equipment costs shall be detailed for each of the following categories:
      Engineering: Including all required designs, drawings, run sheets, instruction manuals, etc.
   2. Pre-installation: Including all fabrication, modification, assembly, rack wiring, etc., performed on the Contractor's premises.
   3. Installation: Including all on-site installation and wiring, coordination and supervision, testing, checkout, Owner training, etc. performed on the Owner's premises.

4. General and Administrative: Including all G&A expenses, shipping, insurance, and guarantees.
5. Taxes (if any are applicable).

1.18 ADMINISTRATIVE/STAFFING INFORMATION TO BE SUBMITTED 45 DAYS FOLLOWING NOTICE TO PROCEED

A. Describe your companies administrative organizational structure, including:
   1. Number of years in business.
   2. Core business
   3. Staff/headcount
      a. Resumes of key personnel. Resumes must reflect skills relating to audio, video, teleconferencing (audio and video), networked audio, networked video, videowalls, videowall processors, control centers, mission critical facilities integrated control systems, programming, project management, etc. Resumes must be submitted for those individuals who will actually be assigned to this project and must include all training background information and certificates (i.e., technical product and ICIA). Upon award of contract, those personnel assigned to the project may NOT be changed without the written approval of the owner
      b. Locations of all staffed and operational offices complete with the number of technical support personnel in each office and geographic area of coverage.
      c. Identify area of servicing expertise by staff member inclusive of all relevant manufacturer training and certifications.
      d. Identify the nearest service facility to this installation site and describe how you approach field service requests. Consider a requirement for an emergency 4 hour on-site response time as well as normal field service requests.

B. Sub-Contracting/Teaming
   1. The AV Contractor must state if they intend to utilize a subcontractor in a systems servicing support role and provide said subcontractor's name and address and technical qualifications with the bid return as noted above. The subcontractor shall comply with all the same rules, regulations, laws and codes, licenses, etc. as required by the AV Contractor and as specified herein. The Owner reserves the right to approve or disapprove any subcontractor proposed by AV Contractor.
   2. If the Bidder proposes to subcontract any portion of the system installation work, any such subcontractors shall be clearly identified and their responsibilities and qualifications detailed in the Bidder's bid submission. Any and all work performed by a subcontractor shall be considered fully as part of the primary Bidder's contract and responsibility.
   3. For each proposed subcontractor, the bid must include at least three client references, with contact names and phone numbers, for comparable projects accomplished by those subcontractors.
   4. If it is the intent of the Bidder to "team" with one or more additional AV contractors, then this must be clearly stated and so identified in the Bidder's bid return. The AV Contractor (Bidder) who is returning the bid shall be considered as the "prime" with respect to these circumstances, and will assume and accept full responsibility for the performance of all members of the "team," including themselves and all other subcontractors engaged in the performance of the contract.
   5. Work specified herein shall be the responsibility of a single Audio Visual Systems AV Contractor. Bid submission shall document a minimum of five (5) years' experience in the

fabrication, assembly, and installation of Systems of similar complexity as specified herein. The Systems are defined as combination of audio, video, AV control, systems programming (of AV devices) and network interface which are to encompass all system types as specified in this document The documentation shall include the names, locations, points of contact and DETAILED descriptions for at least three (3) installations of the type and complexity specified herein.

6. The AV Contractor warrants that both they and their subcontractors are licensed as required by the authorities having jurisdiction and as required by local ordinances.

C. User Serviceability & Service Training
   1. Define and identify specifically what equipment and equipment components can be field repaired/replaced by the users and at what level of manufacturer provided training is required.
   2. The bidder should provide a list of recommend spares and quantities, providing part numbers and unit costs as appropriate for all critical components and Sub-Systems

1.19 EXCEPTIONS AND PROPOSED MODIFICATIONS

A. Should the Bidder wish to propose recommendations that will enhance the performance of the audiovisual system(s), or reduce costs without loss of performance, such comments shall be made in the bid submissions. All suggestions that are of value to the Owner shall be taken into consideration in the evaluation of bid returns. All such proposals shall be made as "alternate(s)", with the appropriate cost modifications clearly shown separate and apart from the costs of the system "as specified."

B. Any and all exceptions to specifications, related drawings, general conditions and terms & conditions must be made with the bid submission. In the absence of exceptions, these specifications and related drawings shall be binding in letter and intent upon the successful Bidder. It is further required, and the Owner shall expressly rely on the fact, that the Bidder has examined all designs and specifications in detail and is prepared to accept full responsibility for the performance of the complete system installation as designed and specified. It is further required, and the Owner shall expressly rely on the fact, that the Bidder has reviewed and accepted current site conditions.

1.20 SUBSTITUTIONS/ALTERNATE EQUIPMENT & SOLUTIONS

A. All bids and equipment shall be submitted on the basis of the equipment list that is included as part of this specification. All specified equipment should be considered to be “or approved equal” unless specifically noted herein. The Bidders are invited to propose alternate equipment/solutions. However, all such proposals shall be submitted separately and will be identified as "alternate(s)" with equipment costs shown as separate and apart from the costs of the equipment "as specified."

B. Proposals for alternate equipment or /solutions will receive careful and equitable consideration if differences do not result in a departure from the overall intent of the system design and operation, and are demonstrated to be in the best interests of the User.

C. All such proposals for alternate equipment/solutions shall be submitted at the time of Bid Return and accompanied by complete technical information, systems drawings and specifications, and "cut-sheets" for the equipment so proposed. The Bidder shall identify any and all substantive differences between the "alternate" and "specified" equipment.

PART 2 - PRODUCTS

2.1 DETAILED SPECIFICATIONS – OPERATIONAL SUMMARY

A. Ballroom
   1. Rack mounted audio processor and amplifier
   2. Audio via ceiling speakers
   3. Audio input wallplates
   4. 4-channel wireless microphone system with handheld and beltpacks
   5. Wall-mounted AV button panel for control of all system functions

B. Training / Support Materials
   1. AVC shall provide comprehensive single page quick start guides that are printed and laminated.
      a. This document will outline common use operations as well as simple trouble shooting steps
      b. (3) revisions within the first year of installation should be planned to document changes in programming or improved documentation based on end-user feedback.
   2. AVC shall create comprehensive operations manuals for the systems providing for more advanced troubleshooting steps for system failures as well as to document more advanced operations of the system, specifically the larger auditoriums.
      a. Part 1 outlines additional operations manual requirements.

2.2 AUDIOVISUAL EQUIPMENT LIST

A. Detailed equipment lists for the audiovisual systems provided as Appendix A. These lists are provided for the purpose of soliciting bids. The bidders are responsible for supplying all equipment necessary to provide complete and working systems, whether or not the equipment is specifically enumerated herein.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions: Examine the areas to receive the work and the conditions under which the Work would be performed. AV Contractor shall remedy conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General
   1. Installation shall include the delivery to the installation site, unloading, setting in place, fastening to walls, floors, ceilings, counters, or other structures where required, interconnecting

wiring of the system components, equipment alignment and adjustment, programming and configuration and all other work whether or not expressly required herein which is necessary to result in complete and fully operational systems.

2. Prior to ordering equipment, the contractor shall coordinate the frequencies of all wireless devices to prevent unwanted interaction between devices and rooms. This includes, but is not limited to, wireless microphones, assisted listening system devices, wireless control panels, etc.
3. All accessories, including rack mounting hardware, power supplies, etc., shall be obtained from the original equipment manufacturer. Unless otherwise noted or specified, third party accessories shall not be used.
4. If, in the opinion of the Contractor, an installation practice is desired or required, which is contrary to these specifications or drawings, a written request for modification shall be made to the Design Team. Modifications shall not commence without written approval from the Design Team
5. During the installation, and up to the date of final acceptance, the Contractor shall be under obligation to protect his finished and unfinished work against damage and loss. In the event of such damage or loss, the damage shall be replaced or repaired at no cost to the Owner.

B. Physical Installation
   1. All equipment shall be firmly secured in place unless requirements of portability dictate otherwise.
   2. All equipment shall have an engraved plaque permanently affixed, denoting its function.
   3. Fastenings and supports shall be adequate to support their loads with a safety factor of at least three. All boxes, equipment, etc., shall be secured plumb and square.
   4. In the installation of equipment and cable, consideration shall be given not only to operational efficiency, but also to overall aesthetic factors.
   5. Trim and Escutcheon Components
      a. To insure a proper finished appearance, the AV Contractor shall furnish and install trim/escutcheon components at all conditions where A/V components pass through the finished ceilings. This would include but not be limited to video projector supports, television monitor/receiver supports and any other component which is not specifically supplied with integral flanges/trim components; i.e. speaker mounts, assistance listening devices, etc.
      b. The visible component of any trim should be minimal in size, preferably no wider than 1/2". All trim components at the ceiling plane shall be finished to match the approved ceiling finish. The audiovisual contractor should obtain a sample from the General Contractor, including any custom color information, or standard color numbers.
      c. All visible components and finish options shall be submitted to the Design Team for review and approval prior to fabrication.

C. Cable Installation
   1. All wire bundles are to be neat and combed free of cable crossovers.
   2. All cables, regardless of length, shall be marked with a permanent, self-laminating wrap-around number or letter cable marker at both ends, similar to the Panduit "Pan-Code" system. Labels must be computer-generated for legibility. Wire labels done by hand in the field must be replaced with computer generated labels. There shall be no unmarked cables at any place in the system. Marking codes used on cables shall correspond to codes shown on drawings and or run sheets. All labeling must be reviewed and approved by Owner prior to installation as part of the shop drawing process.

3. All cables shall be grouped according to the signals being carried. In order to reduce signal contamination, separate groups shall be formed for the following cable families:
   a. Power cables
   b. Control cables
   c. Video cables
   d. Audio cables carrying signals less than – 20 dBm
   e. Audio cables carrying signals between – 20 dBm and +20 dBm
   f. Audio cables carrying signals above +20 dBm
4. As a general practice, all power cables, control cables, and high level cables shall be run on the left side of an equipment rack as viewed from the rear. All other cables shall be run on the right side of an equipment rack, as viewed from the rear.
5. Cables ties shall be placed at appropriate intervals of no greater than six inches for vertical bundles, two inches for horizontal bundles.
6. All vertical cable bundles shall be attached to the rack frame.
7. All cables shall be continuous lengths without splices. All system wire, after being cut and stripped, shall have the wire strands twisted back to their original lay and be terminated by approved soldered or mechanical means. Except where noted otherwise in the specifications, NO BARE WIRE TERMINATIONS WILL BE ACCEPTED. Heat-shrink tubing shall be used to insulate the ground or drain wire. Unused wires at the end of a cable shall remain unstripped and shall be laid back and held in place with wire ties.
8. All solder connections shall be made with rosin-core solder using temperature-controlled solder stations. Care shall be taken to avoid cold or cracked solder joints. Any connections that do not appear to be clean and shiny, or which show signs of cracking, shall be resoldered by the contractor before final acceptance of the system.
9. Mechanical connections using insulated, crimp-type connectors shall be bonded to the connector by soldering the wire to the metal part of the connector.
10. Connections made with screw actuated pressure type terminal strips shall be made by stripping approximately 1/4 inch of insulation from the stranded conductor. Then the un-tinned wire shall be inserted into the terminal and the screw tightened using a secure fitting precision screwdriver.
11. Terminal blocks, boards, strips or connectors shall be furnished for all cables which interface with racks, cabinets, consoles, or equipment modules. No audio cables shall run directly to the audio patch panel jacks. Each audio patch panel shall be furnished with an audio terminal block, and all audio cables to and from the audio patch panel shall terminate on this block.
12. All wire markers shall face a common direction.
13. All cables shall have proper connector housing.
14. Cables shall not protrude from the back of racks.
15. All cable entry shall be through the tops of racks or through entrance holes in the base of the rack. No cable shall enter racks through front, rear or side panel openings.
16. Unless otherwise called for in these specifications and drawings, the following cables, or their approved equals, shall be used in these systems:

Type	Manufacturer	Non-Plenum	Plenum
RF-CATV (Horizontal-RG6)	Belden	1189A	1189P
RF-DBS/DSS (Horizontal-RG6)	Belden	1829A	1829P
RF-CATV (Vertical-RG11)	Belden	1617A/7731	1153A
RF-50 Ohm (Horizontal RG-8)	Times Microwave	Microwave	LMR400
Video (Baseband & SDI)	Belden	1505A	1506A

S-Video	Belden	1807A	7700A
Control (4 conductor shielded)	Belden	1502R	1502P
Control (12 conductor shielded)	Belden	9556	6309FE
Audio	Belden	9451/1266A	9451P
Audio (8 Ohm program speakers)	Belden	8473	1861A
Audio (70 Volt Speaker)	Belden	8461	1863A
Video, RGB (RG6)	Belden	7721A	None
Video, RGB (RG59)	Belden	7796A	1826A
Multi-Channel Audio	Belden	8774	88778
Digital Audio (110 Ohm)	Belden	1800B	1801B
4-Fiber Riser Cable Tight-Buffered 50 µm multimode (OM3)	Corning Cable Systems		004T88-31180-29
Category 6e	Berk-Tek		LANmark-1000 Enhanced Category 6 UTP
Category 6	Berk-Tek		LANmark-6 CAT 6 UTP Plenum
Category 5e	Berk-Tek		LANmark-350 Prem. Cat 5e

D. Note: These cable types are cited to illustrate the type and quality of cable required. Unless otherwise noted, cables from other manufacturers, i.e. Canare, Crestron, CommScope, Extron, Gepco, Liberty, etc. will be considered if data sheets indicating equivalency are submitted to Consultant for approval prior to installation.
   1. It is the responsibility of the Audiovisual Contractor to verify, furnish and install the correct CATV cable type and connectors, as per the local CATV provider.
   2. Unless otherwise noted, all video and computer video cables are to be terminated using seventy-five ohm (75 Ohm) connectors, with a captive center pin.
   3. Cables running in plenum areas without conduit shall be plenum rated cable, and match the specified cable above. It is the responsibility of the Bidder to inspect the electrical drawings, and verify in what spaces plenum cable shall be used. No claims for additional monies, based on the use of plenum cable, will be allowed.
   4. All cables that can be terminated in the field (except video and pulse cables, which must be cut to an electrical length) shall be cut to the length dictated by the run. No splices shall be permitted in any pull boxes without prior permission of the Consultant. For equipment mounted on casters, in drawers or on slides, the interconnecting cables shall be provided with a service loop of appropriate length.
   5. No cable shall be installed with a bend radius less than that recommended by the cable manufacturer.
   6. Where cables are installed in architectural niches, ensure that the cables are black, unless otherwise directed, to reduce visibility from the audience.
   7. Where cables are visible, the cables will be sheathed in a color wrap that has been submitted for approval by the Design Team.

E. CABLE SEPARATION
1. Cable separation of cables for runs greater than 24'.
    a. Microphone Level – 12" from all other circuits.
    b. Line Level and Control – 12" from any circuit with signal of 20dB or greater than Line Level and Control cables.
    c. Speaker level circuits – 12" from other circuits.
    d. Video and Data – 12" from any circuit with signal of 20dB or greater than Video and Data.
    e. AC Power Circuits – 12" from all other circuits.
    f. Required conduit separation are given for all audiovisual pathways on plans

F. CABLE SUPPORT
1. Supporting method in accordance with Section 26 05 00
2. Individual runs throughout building – Support cable at 600mm on center and 100mm at any change in direction. Support from building structure. Cables on top of ceiling tiles will be rejected. Cable supported by ceiling grid support wires will be rejected.
3. Cable Bundles – Where multiple cable combine support at 300mm on center and 100mm at any change in direction. Support from building structure. Cables on top of ceiling tiles will be rejected. Cable supported by ceiling grid support wires will be rejected.

G. RACK CABLING
1. Neatly train and lace cables.
2. Route Cables from components to lacing bars installed on rear rack rail.
3. Provide services loops for each cable.
4. Cable separation of cables for runs within Equipment rack.
    a. Microphone Level – 50mm from all other circuits.
    b. Line Level and Control – 50 mm from any circuit with signal of 20dB or greater than Line Level and Control cables.
    c. Speaker level circuits – 50mm from other circuits.
    d. Video and Data – 50 mm from any circuit with signal of 20dB or greater than Video and Data.
    e. AC Power Circuits – 50mm from all other circuits.

H. APPROVED WIRE TERMINATION MEANS
1. Solder Connections – For connectors utilizing Solder Cups
2. Terminal strip Connectors – For termination of blunt cut cables, cable to be tinned prior to termination
3. Multi Pin connectors – Utilize connector manufacturers crimper
4. Crimp Cap Terminations – For Loudspeaker circuits at individual devices. Distribution cable termination to utilize terminal strip connectors.

I. CONNECTION PLATE RECEPTACLES (unless otherwise specified)
1. All connection plate receptacles must be labeled properly according to Owner approved labeling scheme.
2. Audio (microphone or line level) – XLR type.
3. Audio (loudspeaker level) – Neutrik Speakon®.
4. Intercom – XLR or ¼ inch diameter tip/ring/sleeve type, or as required by the intercom system. Jack shall be insulated from panel type.

5. Video – BNC type.
6. VGA – DB-15HD jack, isolated from panel type, with hex nuts
7. DVI (Inclusive of DVI-A, DVI-I and DVI-D signal types) – DVI-I type connector unless otherwise specified.
8. HDMI – HDMI with locking nut.
9. USB – USB Type A
10. Category 5/6 – RJ45 Type
11. RF – "F" type. Receptacles shall be insulated from panel type.
12. Note: All connectors on wall plates, or in other exposed locations, are to be recessed.

J. PATCH PANELS
1. Patch Panel Assignments
   a. All patch panels shall be wired so that signal "sources" (outputs from) appear on the upper row of a row pair; and all "loads" (inputs to) appear on the lower row of a row pair.
2. Patch Panel Designation Strips
   a. All audio and video patch panel designation strips shall utilize alphanumeric identifications and descriptive information. The jack position in each horizontal row shall be numbered sequentially from left to right. The horizontal jack rows shall be lettered sequentially from top to bottom. The alphanumeric identification of each jack shall be included on the functional block drawings, as well as on reproductions of these drawings, which shall be mounted in an appropriate location near the patch bays.

K. MOUNTING HEIGHTS
1. Coordinate locations of the following with mounting heights as indicated on Architectural, Electrical and Audiovisual drawings.
   a. Technical wall plates
      1) AV input/output connections
      2) Flat panel display panel connections
      3) Video projector connections
      4) Annotation panel connections
      5) PTZ cameras
      6) Wall mounted speaker boxes
   b. Control panels
   c. Pull boxes
   d. Other devices as required

L. Grounding Procedures
1. In order to minimize problems resulting from improper grounding, and to achieve maximum signal-to-noise ratios, the following grounding practices shall be adhered to in order to maintain the integrity of the grounding system:
   a. General
   b. Because of the great number of possible variations in grounding systems, it shall be the responsibility of the Contractor to follow good engineering practice, as outlined below, and to deviate from these practices only when necessary to minimize crosstalk, ground loops, ground-induced noise, and to maximize signal-to-noise ratios in the audio, video, and control systems.

c. System Power Ground: A single primary "system ground" shall be established for the system in each particular area. All grounding conductors in that area shall connect to this primary system ground.
   1) The system ground shall be provided at the audio equipment rack for the area, and shall consist of a copper bar of sufficient size to accommodate all secondary ground conductors. A copper conductor having a maximum of 0.1 Ohms total resistance shall connect the primary system ground bar to the nearest approved ground. The Contractor shall be responsible for determining if the metallic conduit is properly electrically bonded to the building ground system.
   2) Secondary system grounding conductors shall be provided between all racks, audio consoles, and audiovisual system equipment local to the area. Each of these grounding conductors shall have a maximum of 0.1 Ohms total resistance.
   3) Under no conditions shall the AC neutral conductor, either in the power panel or in a receptacle outlet, be used as a system ground, except as specifically defined by NFPA 70 for bonding.
   4) Ungrounded equipment with either an inline transformer or a 2-prong plug, shall be bonded to the rack bus bar using #12awg cable.

d. Audio Cable Shields
   1) All audio cable shields shall be grounded at one point only. There are no exceptions. For inter and intra-rack wiring, this requires that the shield be connected at one end only. For ungrounded portable equipment, such as microphones, the shield shall be connected at both ends but grounded at only one end.

e. Video Receptacles
   1) All video receptacles that are provided and installed by the Contractor shall be insulated from the mounting panel, outlet box, or wireway. Unless otherwise detailed herein, this shall be accomplished by using insulated-from-panel type receptacles.

f. Audio Receptacles
   1) All audio receptacles that are provided and installed by the Contractor shall be insulated from the mounting panel, outlet box, or wireway. Unless otherwise detailed herein, this shall be accomplished by using insulated-from-panel type receptacles.

g. General
   1) Because of the great number of possible variations in grounding systems, it shall be the responsibility of the AV Contractor to follow good engineering practice, as outlined above, and to deviate from these practices only when necessary to minimize crosstalk and to maximize signal-to-noise ratios in the audio, video, and control systems.

3.3 PERFORMANCE STANDARDS

A. Unless restricted by the published specifications of a particular piece of equipment, or unless otherwise required under the Detailed Specifications, the following performance standards shall be met by each system. The signal paths for the above Performance Standards shall be as follows: From all source inputs to all signal destinations. See Contractor System Checkout Section III-T for testing procedures.
   1. Analog Audio

a. Frequency Response Within plus or minus 0.5dB, 20 Hz to 20,000 Hz
b. Signal to Noise Ratio greater than 90dB (including crosstalk and hum at all input/output levels)
c. Total Harmonic Distortion 0.05% maximum from 20 Hz to 20,000 Hz.
d. Input Levels
e. Microphone (Nominal) -50dbu
f. Overload (Minimum gain) -5dbu
g. Maximum Gain -26dbu
h. Line (Nominal) +4dbu
i. Overload (Minimum gain) +24dbu
j. Maximum Gain +9dbu
k. Input Common Mode Rejection >100db
l. Output Levels
m. Line (Nominal) +4dbu
n. Maximum +24dbu
o. Output Impedance < 0.5 Ohms
p. Load Impedance >150 Ohms

2. Analog Video (signal)
   a. Frequency Response Within plus or minus 0.5dB, DC to 4.2 MHz
   b. Signal to Noise Ratio 55 dB minimum (peak to RMS) unweighted, DC to 4.2 MHz
   c. Crosstalk 45 dB minimum unweighted DC to 4.2 MHz
   d. Line and Field Tilt: 2% maximum
   e. Differential Gain: 3% maximum
   f. Differential Gain: 2 degrees maximum
3. SDI – Per SMPTE 259M
4. HD SDI – Per SMPTE 292M
5. HD SDI (Dual Link) – Per SMPTE 424M
6. 3G SDI – Per SMPTE 424M
7. HDMI – Per HDMI Ver. 1.3b
8. DVI – Per DVI Ver. 1.0
9. Analog NTSC Video
10. COMPOSITE VIDEO SIGNAL
    a. Signal 1V P-P 75 Ω(3.58, 4.43MHz) NTSC, PAL, or SECAM as appropriate
11. S-VIDEO SIGNAL
    a. Signal Y: 1.0V p-p, 75 ΩC: 0.286V p-p, 75Ω(3.58, 4.43MHz) NTSC, PAL, or SECAM as appropriate
12. COMPONENT VIDEO (Beta Component)
    a. Signal Y: 1.0V p-p, 75 ΩPB/CB: 07V p-p, 75ΩPR/CR: 0.7V p-p, 75 Ω
13. RF Broadband
    a. The RF Broadband system shall meet or exceed the published standards of the following organizations:
       1) FCC Part 15 Rules and Regulations: Radio Frequency Devices
       2) FCC Part 76 Rules and Regulations: Cable Television Service

3) NCTA-02 Recommended Practices for Measurements on Cable Television Systems.

b. Visual Carrier Level +7 +/- 3dBMv for each tap at channel WW(433.25 MHz)
c. Visual Carrier Level +5 +/- 3dBMv for each tap at channel 2(55.25 MHz)
d. Visual Carrier to Noise Ratio 42 dB minimum on any channel (4MHz bandwidth)
e. Maximum Loss from common 45 dB or less point to any tap at channel WW(433.25 MHz)
f. Maximum Loss from common 37 dB or less point to any tap at channel 2(55.25 MHz)

14. Audio Video Bridging (AVB)
    a. IEEE 802.1AS: Timing and Synchronization for Time-Sensitive Applications
    b. IEEE 802.1Qat: Stream Reservation Protocol (SRP)
    c. IEEE 802.1Qav: Forwarding and Queuing for Time-Sensitive Streams
    d. IEEE 802.1BA: Audio Video Bridging Systems
15. Cobranet Audio
    a. Protocol not subject to performance-based substitution.
16. Dante Audio
    a. Protocol not subject to performance-based substitution.
17. Audiovisual System, Control System and User Interface Programming
    a. Control system user interfaces pages and programming shall be designed for this project exclusively. While there are a great number of design approaches to designing the user interface, the following guidelines shall be adhered to:
        1) The use of custom system programming from prior projects and/or 'modules' provided by a given manufacturer or programmer may or may not meet the functional intent of the systems and work described herein. It is the responsibility of the AV Contractor to meet the functional intent of the systems in this specification, including any and all necessary modification of program code or creation of custom modules as required.
        2) The operation(s) of all system(s) are to match the functional intent already implemented at the owner's facilities as applicable.
        3) All panels are to have the time and date as icons, in the same position on every page.
        4) All panels are to have a title, indicating the piece of equipment and/or functionality being controlled.
        5) Final programming shall include capability to remotely control all functions of the audiovisual system. Only functions required for normal use shall appear on top level pages while underlying "Tech Pages" shall provide access to full manufacturer's remote control functionality.
        6) Devices similar in nature shall be programmed to operate with a common format.
        7) No individual component shall be programmed to function atypically.
        8) Whenever the same button appears on more than one page, it will be in the same position on each page.
        9) Where feasible, multi-level access to controls should be implemented. See paragraph "e", above.
    b. During performance testing, all equipment shall be operated under standard conditions as recommended by the manufacturer.
    c. Please see Detailed Specifications for further information on specific control system programming requirements.

B. Performance Test Signal Paths
   1. The signal paths for the above Performance Standards shall be as follows:
      a. Audio:
         1) From all source inputs (for microphones, audio tape units, video tape units, etc.) through all mixers, switchers, etc., to all signal destinations.
      b. Video:
         1) From all sources of the above signal paths. This shall not exempt the AV Contractor from the responsibility of checking all paths and outlets for appropriate compliance with the Performance Standards, see section below for detailed requirements.

C. Optical
   1. All optical projection systems shall meet the following performance standards:
      a. The total averaged light output from a projector, in lumens, shall be within plus-or-minus 15% of that specified by the projector manufacturer.
      b. The "corner" location shall be defined as the four points determined by intersecting lines drawn 5% of the distance in from the focused edges of the image.
      c. The light meter used for the above measurements shall be a properly calibrated foot-candle (or lux) meter and shall be cosine-corrected.
   2. Projectors, lenses, and mirrors shall be solidly mounted and braced, so that there will be no observable movement in the image induced by motor vibration or other mechanical operations.

3.4 CONTRACTOR SYSTEM CHECKOUT

A. Before Commissioning Tests are scheduled, the Contractor shall perform his own system checkout based upon an approved testing procedure for the systems. The Contractor shall furnish all required test equipment and shall perform all work necessary to determine and/or modify performance of the system to meet the requirements of this specification. The Contractor shall submit a testing plan which shall be in accordance with ANSI-INFOCOMM standard 10-2013-Audiovisual Systems Performance verification for approval by the individual or firm representing the Owner during the Audiovisual Installation. At a minimum, the following sub-components of the Audiovisual System shall be tested and verified:
   1. Cable and Connectors
      a. All cables and connectors shall be tested and verified to comply with the manufacturer's specifications and design intent
      b. Cable test results shall be submitted in advance of the Commissioning for review by the Owner's Representative
   2. Devices
      a. All devices shall meet the functionality as specified by manufacturer.
      b. If any device is found to deviate from the manufacturer's functionality it shall be replaced by the Audiovisual Systems Contractor at no cost to the Owner.
   3. Signal Types
      a. The Audiovisual System shall be tested to comply with all video and audio standards as specified in the Performance Standards section and described by the design intent.
   4. System Function
      a. The cables and connectors, devices, and signal types shall meet the functional requirements as specified by the design intent.

b. Acceptable testing procedures may include but is not limited to that which is described in the detailed specifications such as (streaming, push-to-talk, annotation, etc.)

5. Document that all matrix switching crosspoints have been tested and verified.
6. Provide documentation that all Cobranet / Dante / AVB bundles and audio signal lines have been tested and verified.
7. Test all audio and video systems for compliance with the Performance Standards, using the example procedure outlined in appendix A:
   a. Test Equipment: The following test equipment (or submit equivalent for approval) shall be used to test the systems on site.
      1) Audio check:
         a) Time based measurement system, Goldline TEF20 or SIA Smaart live with laptop PC, calibrated omnidirectional mic, and appropriate interface
         b) Audio test set, Audio Precision ATS-1DD
         c) Media representative of all types found in the subject system
         d) Audio cables as required to connect test equipment to the system
         e) Set of terminations, adapters etc.
      2) Video checks:
         a) Video, Component, RGBS, RGBHV and Digital video signal generator, Extron VTG 400 DVI
         b) Digital Video test generator with EDID and HDCP components, PureLink HDG-8000 PRO
         c) Media and portable hardware (i.e laptop) representative of all types found in the subject system including but not limited to Blu-ray ™ players and discs (provide discs with and without HDCP encrypted content), mobile PC/Tablets.
         d) RGB cable, Extron BNC-5-6'HR
         e) Video cable
         f) Set of terminations, 'T' pieces etc.
      3) Gain Setting
         a) Adjust all systems (end to end within a system) for maximum signal-to-noise ratio. No hiss should be audible through any loudspeaker at the completion of gain structure setting, and all audio gain stages should clip simultaneously.
8. Signal Paths
   a. Video/Audio
      1) Connect the output of the video signal generator to a floor box/table/rack connector and select the "Full Field Color Bar" signal. Connect the combined waveform monitor/vectorscope to a final output point, e.g. an input to a picture monitor or video projector. Ensure that the test signal is routed to the selected output.
      2) Measure and record the signal amplitudes.
      3) Repeat item '1' after selecting the "Multiburst, 50 IRE" test signal.
      4) Measure and record the signal amplitudes.
      5) Repeat item '1' after selecting the "Modulated 5-step" test signal.
      6) Measure and record the signal differential phase and gain.
      7) Repeat item #'s '1' through '6' for other video signal paths.
      8) Repeat item '1' after selecting the Window test signal.
      9) Measure and record the signal line and field tilt.

10) Repeat item '1' after connecting the Black Burst signal from a rear mounted connector.
11) Measure and record the signal/noise ratio.
12) Connect the output of the audio test set to a floor box/table/rack program audio connector and connect the input of the audio test set to a final output point, e.g. an input to a program speaker power amplifier. Ensure that the test signal is routed to the selected output, that the volume control is set to 100% and that the equalizers are bypassed.
13) Measure and record the signal/noise ratio, total harmonic distortion and frequency response.
14) Repeat items '12' and '13' for other audio signal paths.
15) Connect the output of the audio test set to a floor box/table/rack speech audio connector and connect the input of the audio test set to a final output point, e.g. an input to a speech speaker power amplifier. Ensure that the test signal is routed to the selected output, that the volume control is set to 100% and that the equalizer is bypassed.
16) Measure and record the signal/noise ratio, total harmonic distortion and frequency response.
17) Repeat items '15' and '16' for other audio signal paths.
18) DVI: Connect the DVI output of the signal generator to a floorbox/table/rack connector and select the SMPTE & PLUGE signal at the various computer scan rates as follows:
    a) 640 x 480 31.5 kHz H, 60 Hz V
    b) 640 x 480 37.5 kHz H, 75 Hz V
    c) 800 x 600 38 kHz H, 60 Hz V
    d) 832 x 624 49.7 kHz H, 75 Hz V
    e) 1024 x 768 48 kHz H, 60 Hz V
    f) 1280 x 768 48 kHz H, 60 Hz V
    g) 1366 x 768 47.8 kHz H, 60 Hz V
    h) 1280 x 1024 64 kHz H, 60 Hz V
    i) 1400 x 1050 63.9 kHz H, 60 Hz V
    j) HD 720p 45 kHz H, 60 Hz V
    k) HD 1080i 33.75 kHz H, 30/60 Hz V
    l) HD 1080p 33.75 kHz H, 30/60 Hz V
19) Check that the image is correctly displayed on the picture monitor(s) and/or by the video projector.
20) Repeat item '2' using Crosshatch signal, checkerboard signal and H Pattern signal.
21) Repeat item '2' for other DVI connection locations.
22) Connect the output of the audio signal generator to a floorbox/table/rack 'Left' and 'Right' connectors and select the 1 kHz tone. Check that the signal is emitted from the left and right program speakers.
23) Repeat item 'v' for other audio connection location.
24) Note: Whenever possible, include computer sources provided by the Owner, at the desired resolution, in your testing.
25) Note: The term "RGB" is used generically. The system will be tested with the sync format dictated by functional requirements, including, but not limited to, sync-on-green, composite sync and separate horizontal and vertical sync.

Whenever possible, include computer sources provided by the Owner, at the desired resolution, in your testing.

b. At the conclusion of the tests, return all equipment settings to previously calibrated positions.
c. Provide written records of all test results in spreadsheet form.
d. Check all control functions, from all controlling devices to all controlled devices, for proper operations.
e. Adjust, balance, and align all equipment for optimum quality and to meet the manufacturer's published specifications. Establish and mark normal settings for all level controls, and record these settings in the "System Operation and Maintenance Manual".
f. Check all optical projection images for average light level, light fall-off, and image alignment and size to comply with the Performance Standards and specifications drawings. Check to determine that all projectors, projector bases, carts, tables, and mirrors are rigid and vibration-less in operation.
g. Maintain documentation of all performance tests for reference by the Consultant during the System Acceptance Tests.

3.5 COMMISSIONING TESTS

A. Commissioning Tests will not be performed until the Contractor's System Checkout has been completed and the test results have been reviewed. The Commissioning Tests will be supervised by the Owner's Representative and shall consist of the following at a minimum:
   1. A physical inventory of all equipment on site and will be compared to equipment lists in the contract documents.
   2. The operation of all system equipment shall be demonstrated by the Contractor.
   3. Review of final As-Build documentation as described in the "Contractors Documentation" section of this specification.
   4. Both subjective and objective tests will be required by the Owner's Representative to determine compliance with the specifications. The Contractor shall be responsible for providing test equipment for these tests.
   5. All final, "as-built" drawings, run sheets, manuals, and other required documents, as detailed in Part I, shall be on hand. Two complete sets of these documents shall be delivered to the Owner at this time. (One complete set shall have been delivered to the Consultant prior to the scheduling of Acceptance Tests).

B. In the event further adjustment is required, or defective equipment must be repaired or replaced, tests may be suspended or continued at the option of the Owner's Representative.

APPENDIX A – EQUIPMENT LIST

Buffalo Convention Center - Ballroom Renovations
153 Franklin Street
Buffalo, NY

Applies to Room(s): 111

Ballroom

AV EQUIPMENT LIST

Item	Description	Manufacturer	Model	Furnished By	Qty.
	Display Device				
1	Not Applicable This Room Type				
	Media Input				
1	Not Applicable This Room Type				
	Control				
1	Wall-mounted Control Touch Panel - 10"	QSC	TSC-101-G3	AV Subcontractor via GC	2
2	Compact PoE+ AES67 / Dante Network Switch [Installed At Equipment Rack]	By AV Subcontractor via GC	As Required	AV Subcontractor via GC	1
	Audio Equipment				
1	70V Low-Profile In-Ceiling Recessed Speaker	QSC	AD-C6T-LP	AV Subcontractor via GC	32
2	8-Channel 70V Audio Amplifier [Installed At Equipment Rack]	QSC	CX-Q 4K8	AV Subcontractor via GC	1
3	2x XLR Input and 2x XLR Output 2-gang Wallplate Transmitter	QSC	unDX2IO+	AV Subcontractor via GC	4
4	Audio DSP and Control Processor [Installed At Equipment Rack]	QSC	Core 110f	AV Subcontractor via GC	1
5	Audio DSP - Dante / Scripting Licenses	By AV Subcontractor via GC	As Required	AV Subcontractor via GC	1
6	Wireless Microphone System - Four Channel Receiver	Shure	ULXD4Q	AV Subcontractor via GC	1
7	Wireless Microphone System - Surface Mount Wideband Antenna	Shure	UA864	AV Subcontractor via GC	4
8	Wireless Microphone System - Antenna Splitters, Amps, Etc	Shure	As Required	AV Subcontractor via GC	1
9	Wireless Microphone System - Wireless Handheld with Capsule	Shure	ULXD2/B87A	AV Subcontractor via GC	4
10	Wireless Microphone System - Wireless Bodypack	Shure	ULXD1	AV Subcontractor via GC	4
11	Wireless Microphone System - Earworn Mic	Shure	MX153	AV Subcontractor via GC	4
12	Wireless Microphone System - Lavalier Mic	Shure	WL185	AV Subcontractor via GC	4
13	Wireless Microphone System - Lithium-Ion Battery for Wireless Mics	Shure	SB900A	AV Subcontractor via GC	8
14	Wireless Microphone System - Dock Networked Charging Station	Shure	SBC220 + Power Supply	AV Subcontractor via GC	4
	Video Conference Equipment				
1	Not Applicable This Room Type				
	Miscellaneous				
1	Field Cables/ Interconnecting Wiring/ Patch Cables/ Connectors/ Converters/ Adapters/ POE Injectors/ Accessories/ Mounting Hardware/ and Miscellaneous.	By AV Subcontractor via GC	As Required	AV Subcontractor via GC	1
2	18U Wallmount Data Swing Locking Equipment Rack with Vented Front Door	Middle Atlantic	CWR-18-32VD	AV Subcontractor via GC	1
3	Power Distribution [Installed At Equipment Rack]	Middle Atlantic	As Required	AV Subcontractor via GC	1
4	Misc Rack Shelves and Related [Installed At Equipment Rack]	Middle Atlantic	As Required	AV Subcontractor via GC	1

AV Systems Subcontractor responsible for delivering fully turnkey system inclusive of System Engineering, Shop Drawings, Control System and Audio DSP Programming, Pre-Install / Fabrication / Staging, Field Installation / Supervision, Close-out and On-site Traingin, and all applicable Frieght / G&A

1. This equipment list specifies major systems components and equipment, and should not be interpreted as a "bill of materials". This list may not detail all equipment required for complete, working systems. It is the AV Systems Subcontractor's responsibility to provide complete, working systems regardless of the completeness of this list.

2. All device colors, accessory options and display sizes and projector lenses are to be confirmed with Consultant and Architect prior to ordering.

3. AV Systems Subcontractor is required to review all AV equipment models at the time of ordering to ensure that all models are the latest available and the newest generation of equipment from the manufacturers. If newer or next generation model is available at the time of ordering, AV Subcontractor is to notify Consultant for possible replacement of specified model.

END OF SECTION

SECTION 283111 - DIGITAL ADDRESSABLE FIRE ALARM SYSTEM

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 extending the existing fire alarm systems with manual stations, detectors, signal equipment, controls, and devices.

B. This project consists of all necessary hardware equipment and software programming to perform the following functions:

1. Fire alarm and detection operations.
2. Communicate alarms and troubles to remote monitoring systems.
3. Smoke control system.

C. Compatibility with existing equipment: Fire Alarm System and components shall operate as an extension of the existing system.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. HLI: High Level Interface.

D. NICET: National Institute for Certification in Engineering Technologies.

E. PC: Personal computer.

1.4 SYSTEM DESCRIPTION

A. General: Extend and expand the existing fire alarm system to provide coverage to the new addition. Provide complete and satisfactorily operating fire alarm system as described herein, using material and equipment of manufacturer, type, size, rating and performance to match existing (Noncoded, addressable-analog system with manual and automatic alarm initiation; and multiplexed for signal transmission, dedicated to fire alarm service only).

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:

1. Wiring Diagrams: Detail wiring and differentiate between manufacturer-installed and field-installed wiring. Include diagrams for equipment and for system with all terminals and interconnections identified.
2. Battery: Sizing calculations.
3. Floor Plans: Indicate final outlet locations and routings of raceway connections.

C. Coordination Drawings: Plans, sections, and elevations drawn to scale and coordinating installation of smoke detectors in ducts and access to them. Show the following near each duct smoke provision of detector installation:

1. Size and location of ducts, including lining.
2. Size and location of piping.
3. Size and arrangement of structural elements.
4. Size and location of duct smoke detector, including air-sampling elements.

D. Product Certificates: Signed by manufacturers of system components certifying that products furnished comply with requirements.

E. Installer Certificates: Signed by manufacturer certifying that installers comply with requirements.

F. Field Test Reports: Indicate and interpret test results for compliance with performance requirements. Comply with NFPA 72.

G. Maintenance Data: For fire alarm systems to include in maintenance manuals specified in Division 1. Comply with NFPA 72.

H. Certificate of Completion: Comply with NFPA 72.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is an authorized representative of the FACP manufacturer for both installation and maintenance of units required for this Project.

B. Manufacturer Qualifications: A firm experienced in manufacturing systems similar to those indicated for this Project and with a record of successful in-service performance.

C. Source Limitations: Obtain fire alarm system components through one source from a single manufacturer.

D. Compliance with Local Requirements: Comply with applicable building code, local ordinances and regulations, and requirements of authorities having jurisdiction.

E. Comply with NFPA 72.

1.7 SEQUENCING AND SCHEDULE

A. Existing Fire Alarm Equipment: Existing Fire Alarm System shall remain. Provide new devices and equipment as required. Maintain existing system fully operational until new equipment has been tested and accepted. As new equipment is installed, label it “Not In Service” until it is accepted.

1.8 GUARANTEE

A. The Contractor shall guarantee equipment, workmanship, and system operation to be free of any defects for a period of one (1) year from date of acceptance (unless specified otherwise elsewhere). On-site corrections, repairs, and/or replacements shall be made during the guarantee period at no cost to Owner. Maintenance, pursuant to this guarantee, shall be provided by the Contractor at no expense to the Owner.

PART 2 - PRODUCTS

A. Control of System: By the FACP.

B. System Supervision: Automatically detect and report open circuits, shorts, and grounds of wiring for initiating device, signaling line, and notification-appliance circuits.

C. Priority of Signals: Automatic alarm response functions resulting from an alarm signal from one zone or device are not altered by subsequent alarm, supervisory, or trouble signals. An alarm signal is the highest priority. Supervisory and trouble signals have second- and third-level priority. Higher-priority signals take precedence over signals of lower priority, even when the lower-priority condition occurs first. Annunciate and display all alarm, supervisory, and trouble signals regardless of priority or order received.

D. Noninterference: A signal on one zone shall not prevent the receipt of signals from other zones.

E. System Reset: All zones are manually resettable from the FACP after initiating devices are restored to normal.

F. Transmission to Remote Alarm Receiving Station: Automatically route alarm, supervisory, and trouble signals to a remote alarm station by means of a digital alarm communicator transmitter and telephone lines.

G. System Alarm Capability during Circuit Fault Conditions: System wiring and circuit arrangement prevent alarm capability reduction when a single ground or open circuit occurs in an initiating device circuit, signal line circuit, or notification-appliance circuit.

H. Loss of primary power at the FACP initiates a trouble signal at the FACP. The FACP indicates when the fire alarm system is operating on the secondary power supply.

I. Loss of primary power at the FACP initiates a trouble signal at the FACP and the annunciator. An emergency power light is illuminated at both locations when the system is operating on the secondary power supply.

J. Basic Alarm Performance Requirements: Unless otherwise indicated, operation of a manual station, automatic alarm operation of a heat detector, operation of a sprinkler flow device, or verified automatic alarm operation of a smoke detector initiates the following:

1. Notification-appliance operation.
2. Identification at the FACP and the remote annunciator of the device originating the alarm.
3. Transmission of an alarm signal to the remote alarm receiving station.
4. Unlocking of electric door locks in designated egress paths.
5. Release of fire and smoke doors held open by magnetic door holders.
6. Add smoke control system.
7. Shutdown of fans and other air-handling equipment serving zone when alarm was initiated.
8. Closing of smoke dampers in air ducts of system serving zone where alarm was initiated.
9. Recording of the event in the system memory.

K. Alarm Silencing, System Reset and Indication: Controlled by switches in the FACP and the remote annunciator.

1. Silencing-switch operation halts alarm operation of notification appliances and activates an "alarm silence" light. Display of identity of the alarm zone or device is retained.
2. Subsequent alarm signals from other devices or zones reactivate notification appliances until silencing switch is operated again.
3. When alarm-initiating devices return to normal and system reset switch is operated, notification appliances operate again until alarm silence switch is reset.

L. Water-flow alarm switch operation initiates the following:

1. Notification-appliance operation.
2. Flashing of the device location-indicating light for the device that has operated.

M. Smoke detection for zones or detectors with alarm verification initiates the following:

1. Audible and visible indication of an "alarm verification" signal at the FACP.
2. Activation of a listed and approved "alarm verification" sequence at the FACP and the detector.
3. General alarm if the alarm is verified.
4. Cancellation of the FACP indication and system reset if the alarm is not verified.

N. Sprinkler valve-tamper switch operation initiates the following:

1. A supervisory, audible, and visible "valve-tamper" signal indication at the FACP and the annunciator.
2. Flashing of the device location-indicating light for the device that has operated.
3. Transmission of supervisory signal to remote alarm receiving station.

O. Remote Detector Sensitivity Adjustment: Manipulation of controls at the FACP causes the selection of specific addressable smoke detectors for adjustment, display of their current status and sensitivity settings, and control of changes in those settings. Same controls can be used to program repetitive, scheduled, automated changes in sensitivity of specific detectors. Sensitivity adjustments and sensitivity-adjustment schedule changes are recorded in system memory.

P. Removal of an alarm-initiating device or a notification appliance initiates the following:

1. A "trouble" signal indication at the FACP and the annunciator for the device or zone involved.
2. Transmission of trouble signal to remote alarm receiving station.

Q. FACP Alphanumeric Display: Plain-English-language descriptions of alarm, supervisory, and trouble events; and addresses and locations of alarm-initiating or supervisory devices originating the report. Display monitoring actions, system and component status, system commands, programming information, and data from the system's historical memory.

2.2 MANUAL PULL STATIONS

A. Description: Fabricated of metal or plastic, and finished in red with molded, raised-letter operating instructions of contrasting color.

1. Double-action mechanism requires two actions, such as a push and a pull, to initiate an alarm.
2. Station Reset: Key or wrench operated; double pole, double throw; switch rated for the voltage and current at which it operates.
3. Weatherproof Protective Shield: Factory-fabricated clear plastic enclosure, hinged at the top to permit lifting for access to initiate an alarm.

2.3 SMOKE DETECTORS

A. General: Include the following features:

1. Operating Voltage: 24-V dc, nominal.
2. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
3. Integral Visual-Indicating Light: LED type. Indicates detector has operated.
4. Sensitivity: Can be tested and adjusted in-place after installation.
5. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.

B. Photoelectric Smoke Detectors: Include the following features:

1. Sensor: LED or infrared light source with matching silicon-cell receiver.
2. Detector Sensitivity: Between 2.5 and 3.5 percent/foot smoke obscuration when tested according to UL 268A.
3. Integral Thermal Detector: Fixed-temperature type with 135 deg F setting.

C. Ionization Detector: Include the following features:

1. Responsive to both visible and invisible products of combustion.
2. Self-compensating for changes in environmental conditions.

D. Duct Smoke Detector: Ionization type.

1. Sampling Tube: Design and dimensions as recommended by the manufacturer for the specific duct size, air velocity, and installation conditions where applied.
2. Relay Fan Shutdown: Rated to interrupt fan motor-control circuit.

2.4 OTHER DETECTORS

A. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F or rate of rise of temperature that exceeds 15 deg F per minute, unless otherwise indicated.

B. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 190 deg F.

2.5 CARBON MONOXIDE DETECTORS

A. General: Carbon monoxide detector listed for connection to fire-alarm system.

1. Mounting: Adapter plate for outlet box mounting.
2. Testable by introducing test carbon monoxide into the sensing cell.
3. Detector shall provide alarm contacts and trouble contacts.
4. Detector shall send trouble alarm when nearing end-of-life, power supply problems, or internal faults.
5. Comply with UL 2075.
6. Locate, mount, and wire according to manufacturer's written instructions.
7. Provide means for addressable connection to fire-alarm system.
8. Test button simulates an alarm condition.
9. Provide with sounder base with notification alarm (audible and visual) signals in compliance with NFPA 720.

2.6 MULTICRITERIA DETECTORS

A. Mounting: Twist-lock base interchangeable with smoke-detector bases.

B. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Automatically adjusts its sensitivity by means of drift compensation and smoothing algorithms. The detector shall send trouble alarm if it is incapable of compensating for existing conditions.

D. Test button tests all sensors in the detector.

E. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

1. Primary status.
2. Device type.
3. Present sensitivity selected.
4. Sensor range (normal, dirty, etc.).

F. Sensors: The detector shall be comprised of four sensing elements including a smoke sensor, a carbon monoxide sensor, an infrared sensor, and a heat sensor.

1. Smoke sensor shall be photoelectric type as described in "System Smoke Detectors" Article.
2. Carbon monoxide sensor shall be as described in "Carbon Monoxide Detectors" Article.
3. Heat sensor shall be as described in "Heat Detectors" Article.
4. Each sensor shall be separately listed according to requirements for its detector type.

G. Combination Carbon Monoxide/Smoke detectors and Carbon monoxide/Heat detectors shall be provided with two separate system addresses.

1. Smoke/heat detectors portion shall initiate a fire alarm signal.
2. Carbon monoxide detector portion shall send a supervisory signal to the fire alarm panel and active the sounder base.
3. Comply with UL 2075 and UL 238.

2.7 NOTIFICATION APPLIANCES

A. Description: Equip for mounting as indicated and have screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.

B. Visible Alarm Devices: Xenon strobe lights listed under UL 1971 with clear or nominal white polycarbonate lens. Mount lens on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch-high letters on the lens.

1. Rated Light Output: 110 candela.

C. Voice/Tone Notification Appliances:

1. Appliances shall comply with UL1480 and shall be listed and labeled by NRTL.
2. High Range Units: Rated 2 to 15W.
3. Low Range Units: Rated 1 to 2W.
4. Mounting: Flush.
5. Matching Transformers: Tap range mated to acoustical environment of speaker location.

2.8 REMOTE DEVICE LOCATION-INDICATING LIGHTS AND IDENTIFICATION PLATES

A. Description: LED indicating light near each smoke detector that may not be readily visible, and each sprinkler water-flow switch and valve-tamper switch. Light is connected to flash when the associated device is in an alarm or trouble mode. Lamp is flush mounted in a single gang wall plate. A red, laminated, phenolic-resin identification plate at the indicating light identifies, in engraved white letters, device initiating the signal and room where the smoke detector or valve is located. For water-flow switches, the identification plate also designates protected spaces downstream from the water-flow switch.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Connect the FACP with a disconnect switch with lockable handle or cover.

B. Manual Pull Stations: Mount semiflush in recessed back boxes (mount 48 inches to center of handle).

C. Water-Flow Detectors and Valve Supervisory Switches: Connect for each sprinkler valve station required to be supervised.

D. Ceiling-Mounted Smoke Detectors: Not less than 4 inches from a side wall to the near edge. For exposed solid-joist construction, mount detectors on the bottom of joists. On smooth ceilings, install not more than 30 feet apart in any direction.

E. Wall-Mounted Smoke Detectors: At least 4 inches, but not more than 12 inches, below the ceiling.

F. Smoke Detectors near Air Registers: Install no closer than 60 inches.

G. Duct Smoke Detectors: Comply with manufacturer's written instructions.

1. Verify that each unit is listed for the complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
2. Install sampling tubes so they extend the full width of the duct.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Combine audible and visible alarms at the same location into a single unit.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. The entire lens of the strobe or speaker/strobe is to be installed with the entire lens located above 80 inches above finished floor and no greater than 96 inches above finished floor.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 WIRING INSTALLATION

A. Wiring Method: Install wiring in metal raceway according to Division 26 Section "Raceways and Boxes." Conceal raceway except in unfinished spaces and as indicated.

B. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by the manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

C. Cable Taps: Use numbered terminal strips in junction, pull and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.

D. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire alarm system junction boxes and covers red.

E. Risers: Install at least two vertical cable risers to serve the fire alarm system. Separate risers in close proximity to each other with a minimum one-hour-rated wall, so the loss of one riser does not prevent the receipt or transmission of signal from other floors or zones.

F. Wiring to Remote Alarm Transmitting Device: 1-inch conduit between the FACP and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.3 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Identification for Electrical Systems."

B. Install instructions frame in a location visible from the FACP.

C. Paint power-supply disconnect switch red and label "FIRE ALARM."

3.4 GROUNDING

A. Ground cable shields and equipment according to system manufacturer's written instructions to eliminate shock hazard and to minimize, to the greatest extent possible, ground loops, common-mode returns, noise pickup, cross talk, and other impairments.

B. Signal Ground Terminal: Locate at main equipment rack or cabinet. Isolate from power system and equipment grounding.

C. Install grounding electrodes of type, size, location, and quantity as indicated. Comply with installation requirements in Division 26 Section "Grounding and Bonding for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Tests and Inspections:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed Record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" Table in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter.
    b. Comply with "Visual Inspection Frequencies" Table in the "Inspection" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with "Test Methods" Table in the "Testing" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
4. Test audible appliances for the private operating mode according to manufacturer's written instructions.
5. Test visible appliances for the public operating mode according to manufacturer's written instructions.
6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added, relocated or replaced devices and appliances per NFPA 72.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.6 CLEANING AND ADJUSTING

A. Cleaning: Remove paint splatters and other spots, dirt, and debris. Touch up scratches and marred finish to match original finish. Clean unit internally using methods and materials recommended by manufacturer.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel as specified below:

1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, adjusting, and maintaining equipment and schedules. Provide a minimum of 8 hours' training.
2. Training Aid: Use the approved final version of the operation and maintenance manual as a training aid.
3. Schedule training with Owner, through Architect, with at least seven days' advance notice.

3.8 ON-SITE ASSISTANCE

A. Occupancy Adjustments: When requested within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels, controls, and sensitivities to suit actual occupied conditions. Provide up to three requested visits to Project site for this purpose.

END OF SECTION 28 3111