



BLAKE ENGINEERING PLLC

BID Addendum No. 1

February 9, 2023

Cornwall Public Library HVAC Replacement Project

NYSED Project Control Number: 44-03-01-06-6-009-006

This BID Addendum No. 1 forms part of the Contract Documents and modifies the original documents issued for bid on January 26, 2023.

REVISIONS TO THE PROJECT MANUAL

NO.	SECTION	REVISION DESCRIPTION
1	001113	REPLACE with the attached Section 001113 – Advertisement to Bidders
2	011200	REPLACE with the attached Section 011200 – Multiple Contract Summary
3	283100	ADD the attached Section 283100 – Fire Detection and Alarm

RESPONSES TO RFIs

- Who is responsible for the extension of the exterior concrete pad for the mechanical equipment.
 - RESPONSE:** *The MC is responsible for providing the concrete pad extension, Multiple Contract Summary has been revised to remove reference to GC for the pad.*
- Please clarify which contract number corresponds to which contract?
 - RESPONSE:**
Contract No. 1 – General Construction (GC)
Contract No. 2 – Mechanical Construction (MC)
Contract No. 3 – Electrical Construction (EC)
Contract No. 4 – Plumbing Construction (PC)
Contract No. 5 – General Construction – Staff Room Renovations (SRR)
- Are there liquidated damages?
 - RESPONSE:** *No, there are no liquidated damages for this project as it relates to the project schedule. The only liquidated damages that do apply for this project is the Bid Security as explained in Section 002113 Paragraph 4.2.A.4. and Paragraph 6.3.F.*

4. Who is responsible for the duct smoke detectors?
 - a. **RESPONSE:** *Duct smoke detectors shall be furnished and wired by the EC. Size shall be coordinated with the MC and the MC shall mount the duct smoke detectors in the ductwork.*
5. Is the furniture being removed from the space?
 - a. **RESPONSE:** *All furniture including bookcases (and the majority of the books) are going to remain in place. Loose items will be removed by the Owner from the top of surfaces. Contractors are responsible to work around furniture and shift and put back into place as necessary to complete the scope work. GC Contract #1 is responsible for providing protection for all furniture and finishes as defined in the Multiple Contract Summary.*
6. Should the boiler vents and exhaust fan terminations be removed completely through the roof? If so, who is responsible for roof patching?
 - a. **RESPONSE:** *For the boiler vents and exhaust fans being demolished, remove vents/ducting up into the attic space. The roof terminations can be abandoned in place so that no roof patching is required. Cap, seal and insulate the open-ended vent/duct below the roof line.*

SUPPLEMENTAL INFORMATION

The following are photos of existing conditions of the existing building and systems for reference.



Image 1 – Typical Above Ceiling Existing Conditions



Image 2 – Typical Above Ceiling Existing Conditions



Image 3 – Typical Above Ceiling Existing Conditions



Image 4 – Typical Above Ceiling Existing Conditions



Image 5 – Typical Above Ceiling Existing Conditions



Image 6 – Existing Humidifier Above Toilet Rooms to be Removed



Image 7 – Existing Humidifier Above Toilet Rooms to be Removed



Image 8 – Ceiling Space Above Toilet Rooms, Top of Existing AHU to be Removed at Bottom of View



Image 9 – Existing AHU Above Toilet Rooms to be Removed



Image 10 – Attic Space Existing Conditions



Image 11 – Attic Space Existing Conditions



Image 12 – Attic Space Existing Conditions

SECTION 001113 – ADVERTISEMENT TO BIDDERS

Engineer

Blake Engineering PLLC
1898 County Route 1
Westtown, NY 10998
PH: 845-820-3431

Project Information

Cornwall Public Library
395 Hudson Street
Cornwall, NY 12518
PH: 845-534-8282

Cornwall Public Library HVAC Replacement Project

Cornwall Public Library

SED# 44-03-01-06-6-009-006

The Owner, the Cornwall Public Library, will receive sealed bids to furnish materials and labor to complete the HVAC Replacement Project, as noted above. Each bid shall be on a stipulated sum basis for the following contract(s):

Contract No. 01 – General Construction (GC)

Contract No. 02 – Mechanical Construction (MC)

Contract No. 03 – Electrical Construction (EC)

Contract No. 04 – Plumbing Construction (PC)

Contract No. 05 – General Construction – Staff Room Renovations (SRR)

Two copies of sealed bids in an envelope on which is clearly stated the contract number and title will be received until **3:00 pm on February 23, 2023**, at Cornwall Public Library, 395 Hudson Street, Cornwall, NY 12518. Bids received after this time will not be accepted and returned to Bidder unopened. Bids will be opened publicly and read aloud after specified receipt time. All interested parties are invited to attend.

Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online beginning **January 26, 2023**, as a download at the following website: www.revplans.com under 'public projects.'

Complete sets of Bidding Documents, Drawings and Specifications, may be obtained from REVplans, 28 Church Street, Unit 7, Warwick, NY 10990 Tel: 1-877-272-0216, upon depositing the sum of one hundred dollars (\$100.00) for each combined set of documents. Checks or money orders shall be made payable to **Cornwall Public Library**. Plan deposit is refundable in accordance with the terms in the Instructions to Bidders to all submitting bids. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs.

Please note REVplans (www.revplans.com) is the designated location and means for distributing and obtaining all bid package information. Only those Contract Documents obtained in this manner will enable a prospective bidder to be identified as an official plan holder of record. The Provider takes no responsibility for the completeness of Contract Documents obtained from other sources. Contract Documents obtained from other sources may not be accurate or may not contain addenda that may have been issued.

All bid addenda will be transmitted to registered plan holders via email and will be available at www.revplans.com. Plan holders who have paid for hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use and coordinate directly with

the printer for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda.

Each Bidder must deposit a Bid Security in the amount and form per the conditions provided in Instructions to Bidders. All Bids will remain subject to acceptance for forty-five (45) days after the Bid Opening. Owner may, in its sole discretion, release any Bid and return Bid Security prior to that date.

A full performance bond, together with labor and material payment bonds in form acceptable to Owner, shall be required of the successful Bidder for the full contract amount.

The award of bid pursuant to this notice is subject to appropriation of funds for this purpose in accordance with the applicable provisions of the General Municipal Law. All bids must meet the requirements of the General Municipal law of the State of New York and all other applicable statues and have attached a statement of non-collusion. All documents submitted in connection with this bid will become the property of the Cornwall Public Library, and the library will not return bids or bid documents.

A Pre-Bid Conference will be held on **Friday, February 3, 2023 at 1:00 pm, at Cornwall Public Library, 395 Hudson Street, Cornwall, NY**. Use this page to verify identification as a Bidder. Attendance at this meeting is requested as the Owner and Engineer will be present to discuss the Project. Attendees should anticipate a Q & A session, followed by a walk-thru of the respective spaces/buildings. The Engineer will transmit to all listed Bidders record of Addenda in response to clarifications arising from the Conference.

Bids shall not include New York State sales and compensating use taxes on materials and supplies incorporated into the Work, the Owner being exempt therefrom. The Bidders must comply with New York State Department of Labor Prevailing Wage Rate Schedule and conditions of employment.

The Cornwall Public Library reserves the right to waive any informality in submitted bids, reject any or all bids, and to award contracts on its determination of the lowest responsible bidder.

By Order of: Cornwall Public Library

END OF SECTION 001113

SECTION 011200 – MULTIPLE CONTRACT SUMMARY

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 a summary of each Prime Contract, including general requirements for Work, coordination, and specific temporary facilities and controls responsibilities. One set of Construction Documents is issued covering the Work of multiple Prime Contracts.
- B. Specific requirements of Work of each Prime Contract are also indicated in individual paragraphs of this Section and may also be indicated in individual Specification Sections and on drawings. Each Prime Contractor is responsible to review all Construction Documents of the Project for specific requirements, and for a general understanding and knowledge of the Work of other Prime Contractors.
- C. Prime Contractors are responsible for all Work of their Contract, no matter on what drawing the Work appears. Should a conflict or contradiction in assignment of Work be indicated elsewhere in the Construction Documents, this Section shall take precedence over all other assignments of Work.

1. ***Contract No. 1 – General Construction (GC)***
2. ***Contract No. 2 – Mechanical Construction (MC)***
3. ***Contract No. 3 – Electrical Construction (EC)***
4. ***Contract No. 4 – Plumbing Construction (PC)***
5. ***Contract No. 5 – General Construction – Staff Room Renovations (SRR)***

1.3 DEFINITIONS

- A. Project Identification: Project consists of all labor, materials, equipment, appliances, services, and incidentals necessary for layout, installing, and performing the HVAC system replacement at the Cornwall Public Library as shown on the Contract Drawings and described in the Specifications.
- B. Building Site(s): The Building Site(s) shall be defined in the Construction Documents, as the building(s) footprint, and all related construction within a five-foot (5'0") distance of the building's exterior face, unless noted or assigned otherwise.
 1. Prime Contractors shall be aware of, and coordinate, specific exceptions to the 5'0" limit indicated within each Scope of Work outline.
- C. Permanent Enclosure: As determined by the Engineer, the condition at which roofing is installed and weather tight; exterior walls are weather tight and insulated; and all openings are closed with permanent construction or substantial temporary closures equivalent in weather protection to permanent construction.

1. All costs associated with failure to provide and maintain described installations that result in any damage or contamination to the Owner's property, shall be borne by the Prime Contract responsible for the installation.

1.4 GENERAL REQUIREMENTS OF PRIME CONTRACTS

- A. Prime Contracts: The context used in this Section are separate Prime Contracts that represent significant elements of Work that is to be performed concurrently and in close coordination with the Work of other Prime Contracts for the benefit of the Owner. Each Prime Contract is recognized to be a significant, integrated part of the Work.
- B. Layout and Installation: Each Prime Contractor shall schedule, layout and install their Work in such manner as not to delay or interfere with, but to compliment the execution of the Work of other Prime Contractors, utility companies and Owner's operations.
- C. Extent of Contract: The Construction Documents, comprised of drawings and specifications, contain more specific descriptions of the Work, indicating which Prime Contract shall provide specific elements of the Project Work.
 1. Work provided by each Prime Contract shall mean complete and operable systems and assemblies, including products, components, accessories and installations required by the Construction Documents, respective manufactured product, or indicated otherwise.
 2. Prime Contractors shall exercise good judgment and perform all Work according to related industry standards.
 3. The Owner is exempt from payment of Federal, State and local taxes, including sales and compensating use taxes on all materials and supplies incorporated in completing the Work; these taxes are not to be included in the Bid. This exemption does not apply to tools, machinery, equipment or other property leased by, or to, the Prime Contractor or subcontractor, or to supplies and materials, which even though consumed are not permanently incorporated into the completed Work.
 - a. Prime Contractors, and their subcontractors, shall be responsible for paying all applicable taxes on said tools, machinery, equipment or property, and upon all said unincorporated supplies and materials, whether purchased or leased.
 4. Prime Contractors shall understand that time is of the essence and will adequately staff the Project by employing the appropriate trade's people to perform the Work; these people shall be experienced in their respective trades. A shortage of labor in the industry shall not be accepted as an excuse for not properly staffing the Project; all efforts shall be made to meet or exceed the schedule, including additional staff and/or labor hours necessary. All cost associated with this item shall be included within the Prime Contract's Bid.
 5. Local custom and trade union jurisdictional agreements or settlements will not control the scope of the Work of each Prime Contract.
 - a. When a potential jurisdictional dispute or similar interruption of Work is first identified or threatened, the affected Prime Contractor(s) shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and/or delays.
 - b. Contractor's trade-related issues shall not be grounds for modification or extension of scheduled completion date(s).

6. The Work of all Prime Contractors requires close coordination with other Prime Contractors and construction personnel. Maintain flexibility and cooperation through the Project. "Out of Sequence" and "Delay" claims will only be considered when requirements of Division 01 "Project Management and Coordination" have been adhered to.
 - a. Delay claims must be in writing and forwarded to the Engineer per the requirements of the Conditions of the Contract. Claims not submitted per these requirements will be rejected and/or denied.
 7. The intention of the Work is to follow a logical sequence, however, a Prime Contractor may be required by the Engineer, to temporarily install, omit or leave out a section(s) of Work, out of sequence. All such out of sequence Work, and come back time, at these areas shall be performed at no additional cost to the Owner.
- D. Construction Sequencing: Prime Contractors shall understand that concurrent construction on multiple areas/sites of this Project are a requirement. Should an area of construction not be complete per incremental milestones of the schedule included in the Contract Documents, the responsible Prime Contractor shall immediately augment the labor force, whether self-performed or subcontracted, to recover such lost time.
- E. Existing Conditions: Each Prime Contractor shall verify existing conditions in the field and per the Conditions of the Contract, immediately report conditions to the Engineer that are not represented correctly by the Construction Documents.
1. Each Prime Contractor is responsible for familiarizing himself with Project Site Logistics, whether represented in the Construction Documents, or in real time.
 2. Each Prime Contractor has been given ample opportunity to review existing conditions related to the Project. Existing conditions not noted in the Construction Documents that could be easily recognized during pre-bid review that interfere with the respective Prime Contractor's Work, shall be the responsibility of the respective Prime Contractor, including related costs associated with removal, patching, relocation or re-fabrication of installations.
 3. Owner shall be responsible for removing Owner's contents of spaces for construction during unoccupied periods. Prime Contractors shall be responsible for removing and/or protecting, and re-placing Owner's contents during occupied periods, where contractor needs to perform work (ie: second-shift). The contractor shall ensure that spaces worked in are clean, and as encountered when they entered the space, prior to the next business day.
- F. Protection of Installations: Each Prime Contractor is responsible for protecting their installations at all times. All costs incurred to repair, replace or clean insufficiently protected materials/installations shall be the responsibility of the installing Prime Contractor.
1. The Construction Site Representative(s) shall be notified, in writing, immediately upon material/installation being damaged. Notification shall support indication of the responsible party.
 2. The Owner will not be liable for damaged materials and/or installations by "others", when "others" cannot be identified.
 3. Repair damaged Work, clean exposed surfaces or replace construction installations that cannot be repaired.

4. Each Prime Contractor shall be responsible for removing all labels not required to remain, from their installations.
 5. Installations shall be wiped clean and proper protection then installed.
- G. Daily Cleaning: All Prime Contractors are responsible for any and all debris and refuse generated by their Work, including the Work of their subcontractors. A daily clean up and disposal is required by each Prime Contractor for the periods which that Prime Contractor, or its subcontractors, are performing Work on site(s).
1. Maintaining a clean Project site(s) shall be deemed a Safety & Health issue, with Prime Contractors and designated Competent Persons being held accountable for fulfilling obligations.
 2. Daily cleaning will be mandated to remove from the building, any debris created by day-to-day activities.
 3. Daily cleaning will not mean any one Prime Contractor is responsible for assisting another Prime Contractor with removing major quantities of debris created by a particular Prime Contractor's Work.
 4. Contractor working solely in an area shall be responsible for cleaning of that area.
 5. Assign at least one person for a daily clean and sweep of the Work area(s). Prime Contractor shall allot sufficient manpower and time for this to be completed by the end of each days' shift.
 - a. Submit name of person(s) identified for this task to the Construction Site Representative(s).
 - b. Construction Site Representative(s) shall have the authority to give direction directly to person(s) on the Project Site(s) identified by the Prime Contract, designated for cleanup task.
 - c. Any Prime Contractor not providing personnel for daily cleaning will be Back-Charged for labor provided by the Owner or others retained to complete this task.
 6. General Construction (GC) Contractor shall provide sweeping compound for daily cleaning. Each Prime Contractor shall provide sufficient number of brooms or other necessary tools, for use by their personnel to adequately fulfill their obligations.
 7. General Construction (GC) Contractor shall provide and maintain garbage cans/refuse containers with liners for each construction area as directed by the Construction Site Representative(s) and shall be responsible for disposing of these materials to a dumpster.
 8. General Construction (GC) Contractor shall provide the necessary equipment/containers (lull/skip-box) to move daily clean/sweep debris from the building to a dumpster daily. Skip-box shall be emptied to a dumpster by 9:00a.m. the following day.
 9. General Construction (GC) Contractor shall be responsible for waste management (dumpsters, off-site disposal of demolished/removed materials, construction waste, etc.), for their own respective purposes, and for use by Mechanical, Electrical, and Plumbing Prime Contracts.
 10. Final Cleaning: Following Substantial Completion of each area of construction, each Prime Contractor shall wipe/vacuum clean all respective installations.

1.5 GENERAL TEMPORARY FACILITIES AND CONTROLS OF PRIME CONTRACTS

- A. Conditions of Use: Keep temporary services or conditions clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary facilities as required as Work progresses; do not overload facilities or permit them to interfere with progress. Take necessary fire prevention measures; do not allow hazardous, dangerous, or unsanitary conditions to develop or persist on the Project site(s).
1. Installation, operation, maintenance, and removal of each temporary service or condition are considered part of the respective Prime Contractor's own construction activity, as are costs and use charges associated with each facility.
 2. Locate service or condition where they will serve the Project adequately and with minimum interference of the Work, coordinate with the Construction Site Representative(s) and the other Prime Contractors prior to installation.
- B. Temporary Use of Permanent Facilities: Prime Contractor, as installer of each permanent service or condition, shall assume responsibility for its operation, maintenance and protection during use as a construction facility prior to the Owner's acceptance, regardless of previously assigned temporary facilities and controls responsibility.
- C. Owner's Facilities: Contractors are not allowed to use the Owner's facilities (toilets, telephones, food service, etc.) for their own benefit or convenience. Prime Contractor Superintendents shall enforce this policy with their respective Work forces.
1. Construction personnel parking will be restricted to an area(s) indicated on the Site Logistics Plans (if included), or otherwise requested by the Owner. The Owner reserves the right to remove from their property, unauthorized vehicles occupying unauthorized areas, at respective vehicle owner's expense.
- D. Storage on the Project Site: Each Prime Contractor shall provide sufficient secure weather-tight storage facilities for their materials and equipment. The Owner's facilities and the Project's building areas shall not be used for storage, unless agreed upon in advance via the Construction Site Representative(s).
1. Until permanently incorporated into the Work, all materials on the Project site(s) are the Prime Contractor's responsibility for protection, security and insuring thereof.
 2. Prime Contractors and their subcontractors shall coordinate deliveries with the Construction Site Representative(s) to ensure that disruptions and Owner inconvenience are avoided.
- E. Tools and Equipment: Each Prime Contractor shall provide all tools and equipment necessary for its own activities and shall be responsible for secure lock-up and storage for all items on the Project Site(s).
1. Each Prime Contractor shall provide all construction aids and miscellaneous services and facilities necessary, exclusively for its own construction activities including any additional supplementary power, ventilation, dehumidification, lighting requirements and weather protection.
- F. Project Site Communication: Each Prime Contractor shall provide their Project Superintendent and Competent Person with a wireless cellular telephone for the duration of the Project.

1. Construction Site Representative(s) shall be furnished with contact numbers associated with each wireless telephone.
- G. Safety: Prime Contractors, not the Owner, Architect, or Construction Site Representative(s), are responsible for Project Site Safety, as related to their operations and OSHA compliance (refer to Section 013150 “Special Procedures” for further requirements).
1. Each Prime Contractor shall designate a Competent Person, who shall be available to the Construction Site Representative(s) throughout the Project, in representing Safety of the Project Site.
 - a. A Competent Person is defined as one who through training and/or experience, can identify existing and predictable working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate such hazards.
 - b. The Competent Person shall inspect all machinery and equipment before and during use to ensure that they are within safe working parameters. All deficiencies must be promptly repaired, and defective parts replaced before the machine or equipment can be used.
 - c. The Competent Person must have knowledge related to soil classification, protective systems, and safety standards related to excavation.
 2. Maintain unobstructed access to fire extinguishers, fire hydrants, ladders and other safety devices, egress paths, corridors, stairways, and exits.
- H. Fire Extinguishers: General Construction (GC) contractor shall provide and maintain “general use” fire extinguishers for each construction area at respective buildings where work is being performed; comply with applicable codes for quantities required. Comply with NFPA for recommended classes for exposure; extinguishers shall be inspected and appropriately tagged prior to being brought on site. Provide stands, painted bright orange, sturdy enough to carry the extinguisher, and built as not to create a tipping hazard.
1. Each Prime Contractor shall supplement this requirement by providing additional fire extinguishers specifically related to their Work activity (e.g., welding, soldering, abrasive cutting, etc.).
 2. Each Prime Contractor shall provide and maintain proper fire extinguishers at/in their respective on site(s) office and storage facilities.
 3. Store combustible materials in approved containers in fire-safe locations.
- I. Welding: Any Prime Contractor performing welding, cutting or other activities with open flames or producing sparks shall at a minimum:
1. Coordinate interruption/shutdown of detection system(s) to avoid creating false alarms.
 2. Protect the area and surrounding areas from fire and damage.
 3. Maintain fire extinguishers, compatible with activity, at the location of the activity.
 4. Provide a continuous Fire Watch during the activity and one-half hour beyond the completion of the activity.

5. Provide all necessary fans and ventilation required for the activity.
- J. Temporary Barriers: Provide new materials whenever possible; undamaged, previously used materials, in serviceable condition, may be used if approved by the Construction Site Representative(s). Refer to the respective Specification Section when selecting materials and provide similar materials suitable for intended use.
- K. Relocation of Temporary Barrier: In the event a Prime Contractor requires relocation of a temporary barrier, Prime Contractor requiring relocation shall do so and shall protect all personnel in the Work area during the relocation.
 1. Initial installing Prime Contractor shall coordinate the location of barriers with other Prime Contracts, prior to placement of the barrier.
 2. If a barrier must be located such that it will interfere with another's Work, the Contractor requiring the Work now interfered with shall relocate the barrier as required to install his Work.
 3. Coordinate with Construction Site Representative(s).
- L. Termination and Removal of Barriers: Remove each temporary facility when it can be replaced by the authorized permanent facility no later than Substantial Completion, or as directed by the Architect and/or Construction Site Representative(s). Complete or restore permanent facilities that may have been delayed due to interim use of a temporary barrier or condition.

1.6 WORK SEQUENCE

- A. Normal "first shift" work hours are anticipated to be 7:00am to 3:30pm.
- B. "Second shift" work hours shall be anticipated to be 3:00pm to 11:00pm. Coordinate "second shift" and weekend work requirements with the Owner via the Construction Site Representative(s).
 1. Interruption of any utility and/or power must be coordinated with the Owner, via the Construction Site Representative(s). Shut-downs must be approved in writing.
 2. Each Prime Contractor shall provide multiple crews, supervision, tools, cranes, scaffold and other means necessary to perform the Work and maintain the schedule.
 3. Should a Contractor's progress fall behind schedule, Prime Contractor shall employ additional shifts and/or overtime and/or weekend workforce until situation is rectified to the satisfaction of the Owner, Architect, and Construction Site Representative(s), at no additional cost to the Owner.
- C. The Work shall be conducted to provide the least possible interference to the activities of the Owner's personnel and academic calendar.
 1. All Prime Contractors and their subcontractors shall abide by any local ordinances and shall limit excessive noise during "second shift" operations so as not to create a disturbance to neighboring properties.
- D. Construction access to the site(s) shall be limited to personnel, equipment and deliveries by suppliers relative to the Work of Prime Contractors and their subcontractors. Prime Contractors shall keep the

Construction Site Representative(s) advised of persons accessing the site(s) and shall seek assistance with coordinating parking and storage facility locations for all Prime Contractors.

1. General Construction (GC) Contractor shall provide temporary fence/barricades/work area protection at each respective work area on the site(s), to secure work zones from access by unauthorized persons/public while construction operations constitute an area restricted to construction personnel, and while related site construction is underway.
2. General Construction (GC) Contractor shall provide temporary fence/barricades/work area protection at each respective building work area, to secure work zones from access by unauthorized persons/public while building additions or renovations constitute an area restricted to construction personnel, and while related site construction is underway.

1.7 GENERAL CONSTRUCTION (GC) – CONTRACT NO. 1

- A. Applicable Drawings: All drawings itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
 1. General (G-Series)
 2. Architectural Demolition (AD-Series) - Coordination related to this Prime Contract
 3. Site/Civil (C-Series)
 4. Structural (S-Series)
 5. Architectural (A-Series)
 6. Architectural Finishes (AF-Series)
- B. Applicable Specification Sections: All specification Sections itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
 1. Divisions 00-14 – All Sections
 2. Divisions 22-28 - Coordination related to this Prime Contract
 3. Divisions 30-34 – All Sections
- C. Project Site Superintendent: GC shall provide a full-time on-site Project Site Superintendent while any Work related to this Contract is being performed on site(s), including the activities of their subcontractors, while other Prime Contracts are installing Work, or require the coordination of Work related to this Contract, and/or as requested by the Construction Site Representative(s).
- D. Scope of Work: The Work of this Prime Contract includes but is not limited to, the following:
 1. Work delineation between building and site(s) is at five feet (5') outside of the face of building, existing and new, unless noted or assigned otherwise.
 2. Prime Contract shall understand that renovation Work may require Work to proceed while existing systems are required to be maintained; all cost associated with this sequence shall be anticipated and incorporated into the Bid.
 3. Environmental Protection: Provide protection and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - a. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms on or near the Project Site.

- b. Provide dust control while Work of this Contract is being performed. Limit situations that may create dust contamination while Work of this Contract is idle.
 - c. Refer to Section 01 "Work Restrictions" for additional information.
 4. Provide all Control Lines and Elevations as required. GC shall transfer lines and elevations to other locations as necessary.
 5. The Architectural Drawings are schematic in nature, and the CC will make adequate provisions to accommodate the actual field conditions without additional cost to the Owner.
 6. Provide all demolition of General Construction Systems indicated in the Construction Documents, and/or required for Work of this Prime Contract.
 - a. Coordinate with all other Prime Contracts regarding all removals required for the Project.
 - b. Demolition of a system shall mean any and all components, removed in their entirety, to the point of origin or source.
 7. Provide all Work associated with creating structural openings or penetrations requiring lintels, whether for GC's own Work or Work of the MC, EC or PC (i.e.: ductwork and pipe penetrations). This applies to all openings/penetrations greater than 8" through masonry or concrete walls. GC can find likely locations of such openings/penetrations by noting ductwork/piping penetrations through walls on the respective Mechanical, Electrical, or Plumbing drawings. More or less locations of openings/penetrations may be required upon coordinated installation.
 - a. MC, EC & PC shall indicate all required openings/penetrations requiring lintels on Coordination Drawings. Failure to note required openings/penetrations on the coordination drawings for the GC will require that the respective MC, EC & PC provide their own structural openings in accordance with the contract documents at no additional cost to the Owner.
 - b. Non-structural openings/penetrations, including those for convenience, shall be self-provided by the respective GC, MC, EC or PC.
 - c. Refer to Structural documents for lintel type/size requirements and Architectural drawings for wall types. Walls not specifically identified in the documents are to be assumed as masonry construction.
 - d. All scheduled exterior wall louver openings indicated on Architectural and/or Structural documents are to be created by GC. MC shall supply and install louver.
 - 1) Exact physical locations shall be laid-out by MC for coordinated sequencing with GC.
 - e. All openings/penetrations are to be additionally identified on Record Drawings, by the Prime Contract requiring the opening.
 8. Provide all doors, frames, hardware, windows, and glazing as per the Construction Documents.
 9. Provide all cut and patch Work related to that of this Prime Contract, and at those areas specifically identified in the Construction Documents, regardless of trade creating the area to be patched.
 - a. Each Prime Contract is responsible for all other respective cutting and patching required of their installations (refer to Section "Cutting and Patching" for further information).

10. Provide finishes including, but not limited to; CMU, gypsum board assemblies, plaster, suspended ceiling systems, tile, and all paint, flooring and finishing systems.
 - a. Provide all associated surface preparation for each finish included in this Prime Contract.
 - b. Prep/Paint exposed structural steel and/or concrete including related deck, as indicated in the Construction Documents.
 - c. Prep/paint all exposed, unfinished ducts and conduit in related finished areas.
 11. Provide all new ceiling systems as indicated in the Construction Documents, complete.
 - a. Coordinate with Lighting, PA, Fire Alarm, etc. by EC.
 - b. Coordinate with Registers, Grilles, etc. by MC.
 - c. In Acoustic Panel Ceiling systems, install field tiles only upon approval by the Construction Site Representative(s) to do so. Failure to seek prior approval may require tiles to be removed for further work and/or inspections.
 12. Provide all miscellaneous wood blocking, shimming and supports for items or equipment installed under this Prime Contract, and as coordinated with other Prime Contractors for metal strapping and/or wood blocking for installations of other Prime Contracts.
 13. Provide all access doors/panels indicated, and those not indicated whereas inaccessible installations have been provided by this Prime Contract, located above hard ceilings or in walls.
 14. Provide through-penetration fire stop systems at all penetrations made by this Prime Contract, maintaining listed ratings of indicated assemblies. Provide repair of existing through-penetration fire stopping damaged by Work of this Prime Contract.
 - a. Sleeves with fire stopping are to be installed in sequence with fire-rated construction. This Prime Contract shall be responsible for installing fire stopping material at intersection of sleeve and constructed materials.
 15. Provide coordination with, and notification to, the Construction Site Representative(s) for all specified testing, training, commissioning, etc., of the Work of this Prime Contract.
 16. Substantial Completion: Clean all GC installations and provided equipment at the time of Substantial Completion or as directed by Construction Site Representative(s).
 17. Coordinate all the preceding requirements, accordingly, with all applicable Alternates indicated in Division 01 Section "Alternates".
- E. Supplemental Temporary Facilities and Controls by GC includes but is not limited to:
1. Protection of the Facility: Provide protection of all existing finishes and furnishings within the facility including but not limited to walls, ceilings, floors, desks, tables, book shelves. The Owner will clear off all loose items from the top of surfaces, but all large furniture will remain in place. Contractor shall provide protection over the top of all furniture and flooring within the areas of work.
 2. Waste Disposal Facilities: Provide general debris/refuse/construction waste containers and waste management (dumpsters, off-site disposal of demolished/removed materials, etc.), for their own respective purposes, and for use by Mechanical, Electrical, and Plumbing Prime Contracts.

3. Misc. Temporary Fences, Gates and Barricades: Provide and maintain temporary fencing and barricading to keep unauthorized persons away from interior and exterior excavations and/or construction areas for which this Prime Contract is responsible.
 - a. Coordinate via Construction Site Representative(s), at commencement of, and completion of construction areas, including but not limited to those indicated in the Construction Documents.
4. Temporary Doors, Frames & Wall Assemblies: Provide, maintain and eventually remove all temporary installations per OSHA Regulations, Industry Standards, or as indicated in the Construction Documents.
 - a. Provide fire rated assemblies as required.
 - b. Provide exit (panic bar/crash bar) devices at locations of egress.
 - c. Coordinate locations with Construction Exiting Plan, Sequencing/Phasing Plans, and the Construction Site Representative.
 - d. Temporary doors shall be constructed using 1/2' plywood and 2x construction, equipped with hasps, locks, handle and latch mechanism, and spring or counter weight installed to allow door to close after opening.
 - e. Permanent doors will not be used in temporary conditions.
5. Temporary Window Openings: Window openings shall be enclosed using 2x construction, 1/2' plywood, and reinforced polyethylene. Where window opening start at or near the floor, plywood shall be installed from finish floor to minimum of 42" AFF; reinforced poly may be installed from this point up. Should contractor choose to install plywood across the entire opening, sufficient area will be installed with reinforced poly to allow emergency escape, if required, and to allow natural light into the work area.
 - a. Installation shall be insulated if temporary heat or cooling is being employed.
6. Temporary Exterior Wall Enclosure: Provide and maintain temporary enclosures for weather protection and security of the construction in progress up until completion of permanent installation specified. Enclosures shall protect the building from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
 - a. Where heating and cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with venting and material drying or curing requirements to avoid dangerous conditions and effects.
 - b. Install tarpaulins securely; install fire retardant materials only.
 - c. Where temporary wood enclosures exceed 100 sq. ft. in area, use fire retardant treated materials for framing and sheathing.
 - d. All cost incurred to repair and/or replace materials damaged, due to the failure of GC to provide and maintain weather tight enclosure shall be borne by this Prime Contract. This includes any contamination of materials that may lead to the introduction of mold and mildew.
 - e. Immediately notify the Construction Site Representative, in writing, as to damage to temporary enclosures by "others"; identify responsible party in the submission. Owner shall not be liable for damages caused by "others" if Prime Contract cannot identify responsible party.
7. Temporary Sanitary Facilities: Provide temporary self-contained toilets units for duration of the project for use by forces of all Prime Contracts (including abatement and demolition phases) and their subcontractors, until completion of Punch List work, and closeout of the Contracts.

- a. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - b. Provide separate facilities (minimum of one ea.) for male and female personnel in proportion required by OSHA.
 - c. Shield toilets to ensure privacy.
 - d. Coordinate mobilization and demobilization of units with Construction Site Representative(s).
 - e. Toilets shall be cleaned at least once per week, with additional facilities or cleanings provided if requested by Construction Site Representative(s).
 - f. Provide and maintain adequate supply of toilet tissue and hand sanitizer for each facility.
8. Indoor air quality management at all areas of Construction, once building is enclosed.
- a. Provide all necessary dust partitions, fans, temporary ducts, and barricades to properly contain and ventilate all work area fumes and odors, created by demolition and new construction or alterations, directly to the outside. Ventilate to an area outside the building, sufficiently away from the building, as not to contaminate other areas. There will be no additional claims honored if the Construction Site Representative requests additional ventilation or requirements.
 - b. Provide and exhaust air system for the project indoor areas that could produce fumes, VOC's, off gasses, dusts, mists, or other emissions.
 - c. System Operation:
 - 1) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated.
 - 2) Exhaust air system shall operate for a minimum of 72 hours after work is completed or until all materials have cured sufficiently so as to stop out – gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
 - 3) Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
 - 4) Refer to Division 01 Section “Work Restrictions” for further information.
9. Project Signage: Provide Project sign(s), and any/all construction signage indicated in the Construction Documents.
- a. Coordinate installation via Construction Site Representative(s).
10. Provide all shoring required for Work of this Contract, including but not limited to.
- a. Cutting or altering of existing construction.
 - b. Provide protection of all new and existing surfaces during the Work. Do not stand, walk, or work off of any unprotected finished surface above the floor.
11. Maintain temporary fencing and barricading to keep unauthorized persons away from excavations and hazardous areas for which this Prime Contract is responsible.
12. Traffic Controls: Provide flagman while any operations of this Prime Contract interfere with traffic flow on adjacent roadways.

1.8 MECHANICAL CONSTRUCTION (MC) – CONTRACT NO. 2

- A. Applicable Drawings: All drawings itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:

1. General (G-Series)
 2. Mechanical General (MG-Series)
 3. Mechanical (M-Series)
- B. Applicable Specification Sections: All specification Sections itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
1. Divisions 00 & 01 – All Sections
 2. Divisions 02-22 – Coordination related to this Prime Contract
 3. Division 23 – All Sections
 4. Divisions 26-34 Coordination related to this Prime Contract
- C. Project Site Superintendent: MC shall provide a full-time on-site Project Site Superintendent while any Work related to this Contract is being performed on site(s), including the activities of their subcontractors, while other Prime Contracts are installing Work, or require the coordination of Work related to this Contract, and/or as requested by the Construction Site Representative(s).
- D. Scope of Work: The Work of this Prime Contract includes but is not limited to, the following:
1. Work delineation between building and site(s) is at five feet (5') outside of the face of building, existing and new, unless noted or assigned otherwise.
 2. All new heating system components must be protected, from potential contamination. Once the building is occupied, the building shall be heated to a minimum of 65 degrees F for the heating period of September 15th – May 31st.
 3. Environmental Protection: Provide protection and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - a. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms on or near the Project site(s).
 - b. Refer to Section 01 "Work Restrictions" for additional information.
 - ~~4. GC shall provide concrete housekeeping and structural pads for equipment provided under this Prime Contract. MC shall coordinate size, orientation and location with GC, by way of providing physical layout, and verification prior to construction thereof.~~
 5. GC shall provide all Work associated with creating structural openings or penetrations requiring lintels, whether for their own Work or Work of the MC, EC or PC (ie: ductwork and pipe penetrations). This applies to all openings/penetrations greater than 8" through masonry or concrete walls.
 - a. MC, EC & PC shall indicate all required openings/penetrations requiring lintels on Coordination Drawings. Failure to note required openings/penetrations on the coordination drawings for the GC will require that the respective MC, EC & PC provide their own structural openings in accordance with the contract documents at no additional cost.
 - b. Non-structural openings/penetrations, including those for convenience, shall be self-provided by the respective Prime Contract. This assignment applies to new and existing construction areas.

- c. Refer to Structural documents for lintel type/size requirements and Architectural drawings for wall types. Walls not specifically identified in the documents are to be assumed as masonry construction.
 - d. All scheduled exterior wall louver openings indicated on Architectural and/or Structural documents are to be created by GC. MC shall supply, install, flash and seal the louver. Exact physical locations shall be laid-out by MC for coordinated sequencing with GC.
 - e. All openings/penetrations are to be additionally identified on Record Drawings, by the Prime Contract requiring the opening.
6. GC shall provide all cut & patch Work, related to that of their Prime Contract, and at those areas specifically identified on the Construction Documents, regardless of trade creating the area to be patched.
 - a. Each Prime Contract is responsible for all other respective Cutting & Patching required of their installations (refer to Section 017310 for further information).
7. Prime Contract shall understand that renovation Work may require Work to proceed while existing systems are required to be maintained; all cost associated with this sequence shall be anticipated and incorporated into the Bid.
8. The HVAC Drawings are schematic in nature, and the MC will make adequate provisions to accommodate the actual field conditions without additional cost to the Owner.
9. Document on the Record Drawings all ductwork openings and penetrations larger than 2 ½” in diameter.
10. Provide all demolition of Mechanical Systems indicated in the Construction Documents, and/or required for Work of this Prime Contract.
 - a. Coordinate with all other Prime Contracts regarding all removals required for the Project.
 - b. Demolition of a system shall mean any and all components, removed in their entirety, to the point of origin or source.
11. Provide valves, whether permanent or temporary, to permit shutoff and/or cap systems to achieve the Work of this Prime Contract.
12. Provide installation of new HVAC system(s), or modifications of existing system(s) as indicated in the Construction Documents, complete and fully operational.
 - a. MC shall furnish all related electrical disconnects, variable speed drives and motor starters (including related “heaters, fuses, and phase protection relays”) for all equipment provided under this Contract, for coordinated installation by EC.
 - b. Owner shall provide DDC Temperature Controls as a function of the Building Automation System, as referenced in the Construction Documents. MC shall install controls and instrumentation devices, including but not limited to control valves, control dampers, thermowells, pressure probes, flow switches, airflow metering stations, insertion flow meters, and ultrasonic flow meters, required for system operations and as indicated. Such devices will be furnished by vendor [Automated Logic] to the MC for coordinated installation in HVAC systems.
 - 1) Temperature Controls System vendor/installer shall provide line voltage power wiring to its own head-end, regionally located control panels, and line voltage valves, actuated dampers, motors, etc. that are not indicated in the E drawings.

- 2) Temperature Controls System vendor/installer shall provide all low voltage wiring of controls, transformers, actuated dampers, motors, etc., as required for a complete operational system.
 13. Provide thermal insulation and identification of all HVAC system/components provided/installed by this Prime Contract.
 14. Provide concrete housekeeping and structural pads for equipment provided under this Prime Contract.
 15. MC shall hang streamers from all above-ceiling equipment that will require access. This is in addition to any specification requirements for tags, labels, etc. Coordination Drawings shall highlight these areas for Architect's and Engineer's review.
 16. Provide all access doors/panels to access inaccessible installations (i.e. valves) provided by this Prime Contract, such as above hard ceilings or in walls. Access panel type shall be same as GC approved submittal, and in sizes adequate for easy access and or replacement of installation.
 17. Provide sleeves required for piping penetrating walls, slabs and/or decks.
 18. Provide through-penetration fire stop systems at all penetrations made by MC for utility penetration of this Prime Contract, maintaining listed ratings of indicated assemblies. Provide repair of existing through-penetration fire stopping damaged by Work of this Prime Contract.
 - a. Sleeves with fire stopping are to be installed in sequence with fire-rated construction. This Prime Contract shall be responsible for installing fire stopping material at intersection of sleeve and constructed materials.
 19. Provide coordination with, and notification to, the Construction Site Representative(s) for all specified testing, training, commissioning, etc., of the Work of this Prime Contract.
 20. Substantial Completion: Clean all MC installations and provided equipment at the time of Substantial Completion or as directed by Construction Site Representative(s).
 21. Coordinate all the preceding requirements, accordingly, with all applicable Alternates indicated in Division 01 Section "Alternates".
- E. Supplemental Temporary Facilities and Controls by MC include, but are not limited to, the following:
1. Waste Disposal Facilities:
 - a. General debris/refuse/construction waste containers (dumpsters) shall be provided by GC, for use by MC.
 - b. It shall be the responsibility of this Prime Contract to recycle metals generated by its Work, and the Work of its subcontracts.

- 1) Joint effort recycling by all Prime Contracts is encouraged.
2. Indoor air quality management at all areas of Work by this Prime Contract, once building is enclosed.
 - a. Provide all necessary dust partitions, fans, temporary ducts, and barricades to properly contain and ventilate all Work area fumes and odors, created by demolition and new construction or alterations, directly to the outside. Ventilate to an area outside the building, sufficiently away from the building, as not to contaminate other areas. There will be no additional claims honored if the Construction Site Representative(s) requests additional ventilation or requirements.
 - b. Provide and exhaust air system for the project indoor areas that could produce fumes, VOC's, off gasses, dusts, mists, or other emissions.
 - c. System Operation:
 - 1) Provide temporary dust/fume protection at areas of Work of this Contract to limit contamination of surrounding areas. All cost incurred, by the Owner, for added cleaning expenses, due to the failure of this contract to provide and maintain adequate dust/fume protection, for the Work of this Contract, shall be borne by this Contract.
 - 2) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated.
 - 3) Exhaust air system shall operate for a minimum of 72 hours after Work is completed or until all materials have cured sufficiently so as to stop out – gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
 - 4) Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
 - 5) Refer to Division 01 Section “Work Restrictions” for further information.
3. Provide all shoring required for Work of this Contract, including but not limited to.
 - a. Cutting or altering of existing construction.
 - b. Provide protection of all new and existing surfaces during the Work. Do not stand, walk or work off of any unprotected finished surface above the floor.
4. Maintain temporary fencing and barricading to keep unauthorized persons away from excavations and hazardous areas for which this Prime Contract is responsible.
5. Traffic Controls: Provide flagman while any operations of this Prime Contract interfere with traffic flow on adjacent roadways.

1.9 ELECTRICAL CONSTRUCTION (EC) – CONTRACT NO. 3

- A. Applicable Drawings: All drawings itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
 1. General (G-Series)
 2. Electrical General (EG-Series)

3. Electrical (E-Series)
- B. Applicable Specification Sections: All specification Sections itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
1. Divisions 00 & 01 – All Sections
 2. Divisions 02-23 – Coordination related to this Prime Contract
 3. Divisions 26-28 - All Sections
 4. Divisions 30-34 – Coordination related to this Prime Contract
- C. Project Site Superintendent: EC shall provide a full-time on-site Project Site Superintendent while any Work related to this Contract is being performed on site(s), including the activities of their subcontractors, while other Prime Contracts are installing Work, or require the coordination of Work related to this Contract, and/or as requested by the Construction Site Representative(s).
- D. Scope of Work: The Work of this Prime Contract includes but is not limited to, the following:
1. Work delineation between building and site(s) is at five feet (5') outside of the face of building, existing and new, unless noted or assigned otherwise.
 2. Prime Contract shall understand that renovation Work may require Work to proceed while existing systems are required to be maintained; all cost associated with this sequence shall be anticipated and incorporated into the Bid.
 3. The Electrical Drawings are schematic in nature, and the EC will make adequate provisions to accommodate the actual field conditions without additional cost to the Owner.
 - a. EC shall install Work in accordance with the National Electrical Code requirements. No additional compensation will be made for extra offsets in conduit or retro-fit Work due to improper component location, or lack of Prime Contractor's coordination.
 4. Provide re-routing of existing power distribution as indicated in the Construction Documents, specifically to allow for progression of the Work sequence.
 5. Provide all demolition of Electrical Systems indicated in the Construction Documents, and/or required for Work of this Prime Contract.
 - a. Coordinate with all other Prime Contracts regarding all removals required for the Project.
 - b. Demolition of a system shall mean any and all components, removed in their entirety, to the point of origin or source.
 6. Provide all lighting, including fixtures, switching devices, circuits, etc.
 - a. Provide new fixtures as scheduled.
 - b. Provide removal and complete reinstallation of fixtures scheduled for salvage and re-use.
 - c. Contractor shall be responsible to tie-up and support existing fixtures and ceiling-mounted electrical devices to structure above Acoustic Panel Ceiling systems, when ceilings are to be removed as early-work, and the space is scheduled to remain occupied during continued Work.

7. GC shall provide all Work associated with creating structural openings or penetrations requiring lintels whether for their own Work or Work of the MC, EC or PC (ie: ductwork and pipe penetrations). This applies to all openings/penetrations greater than 8” through masonry or concrete walls.
 - a. MC, EC & PC shall indicate all required openings/penetrations requiring lintels on Coordination Drawings. Failure to note required openings/penetrations on the coordination drawings for the GC will require that the respective MC, EC & PC provide their own structural openings in accordance with the contract documents at no additional cost to the Owner.
 - b. Non-structural openings/penetrations, including those for convenience, shall be self-provided by the respective GC, MC, EC or PC. This assignment applies to new and existing construction areas.
 - c. Refer to Structural documents for lintel type/size requirements and Architectural drawings for wall types. Walls not specifically identified in the documents are to be assumed as masonry construction.
 - d. All openings/penetrations are to be identified on Record Drawings by the Prime Contract requiring the opening.
8. GC shall provide all cut & patch Work, related to that of their Prime Contract, and at those areas specifically identified on the Construction Documents, regardless of trade creating the area to be patched.
 - a. Each Prime Contract is responsible for all other respective Cutting & Patching required of their installations (refer to Section 017310 for further information).
9. GC shall provide concrete housekeeping and structural pads for equipment provided under this Prime Contract. EC shall coordinate size, orientation and location with GC, by way of providing physical layout, and verification prior to construction thereof.
10. Provide complete electrical requirements, materials and methods including but not limited to:
 - a. Service and distribution including bus-way, switchgear, panel boards, and disconnect switches.
 - b. Provide grounding protection for all circuits and outlets and as required by applicable codes and authorities having jurisdiction. Properly ground building equipment provided by this project.
 - c. Coordinate any electrical switchover as to least impact the Project Schedule, and/or as indicated in the Construction Documents.
 - d. Immediately after installation, provide and maintain temporary ID of all circuit breakers and at all shut offs/disconnects until permanent ID is in place.
 - e. Interior and exterior lighting and lighting control equipment; provide occupancy sensors and/or timing devices as indicated.
 - f. Provide raceways, boxes, cabinets and sleeves through existing and new construction.
 - g. Provide wire, cable, conduit, boxes, and wiring devices.
 - h. Provide permanent electrical identification.
 - 1) Provide type written panel board schedules.
 - 2) Clearly label all panel boards, disconnects, relays, junction boxes, and other electrical devices and equipment.
11. Final connection of utilities, installations or equipment by others are by MC, EC and PC, unless noted or assigned otherwise.

- a. MC shall furnish all disconnects, variable speed drives and motor starters (including related “heaters, fuses, and phase protection relays”), for all equipment provided under their respective Prime Contract, for coordinated installation by EC.
 - b. Provide all line voltage circuits and connections to points of demarcation indicated and/or equipment provided by MC.
 - c. Provide final connections to all scheduled equipment furnished by the Owner.
12. Provide Fire Alarm system as indicated in the Construction Documents.
- a. EC shall expand existing, and integrate Fire Alarm system with all HVAC equipment, natural gas shut-downs, Fire Protection systems, AED cabinets, coiling overhead doors, fire shutters, pedestrian doors equipped with electro-magnetic hold-open devices, etc.
13. Provide streamers hung from all above-ceiling equipment that will require access. This is in addition to any specification requirements for tags, labels, etc. Coordination Drawings shall highlight these areas for Architect and Engineer’s review.
14. Provide all access doors/panels to access inaccessible installations (i.e. junction boxes) provided by this Prime Contract, such as above hard ceilings or in walls.
15. Provide sleeves required for piping penetrating walls, slabs and/or decks.
16. Provide through-penetration fire stop systems at all penetrations made by this Prime Contract, maintaining listed ratings of indicated assemblies. Provide repair of existing through-penetration fire stopping damaged by Work of this Prime Contract.
- a. Sleeves with fire stopping are to be installed in sequence with fire-rated construction. This Prime Contract shall be responsible for installing fire stopping material at intersection of sleeve and constructed materials.
17. Provide coordination with, and notification to, the Construction Site Representative(s) for all specified testing, training, commissioning, etc., of the Work of this Prime Contract.
18. Provide all testing and adjusting, instruction and guarantees for materials and equipment of this Prime Contract.
- a. Substantial Completion: Clean all light fixtures and electrical equipment at the time of installation or at Substantial Completion, whichever is later, or as directed by Construction Site Representative(s).
19. Coordinate all the preceding requirements, accordingly, with all applicable Alternates indicated in Division 01 Section “Alternates”.
- E. Supplemental Temporary Facilities and Controls by EC include, but are not limited to, the following:
1. Waste Disposal Facilities:
 - a. General debris/refuse/construction waste containers (dumpsters) shall be provided by GC, for use by EC.
 - b. It shall be the responsibility of this Prime Contract to recycle metals generated by its Work, and the Work of its subcontracts.
 - 1) Joint effort recycling by all Prime Contracts is encouraged.

2. Temporary Lighting and Power.
 - a. Provide temporary power and lighting as needed to the areas of work to allow for ongoing construction activities.
 - b. While permanent light fixtures have been removed from ceilings to allow for overhead work to take place, provide temporary construction lighting throughout the impacted areas.
 - c. Provide temporary stanchion, panel and lighting control mounting at Janitor's Closet to allow for replacement of existing partition walls.
3. Indoor air quality management at all areas of Work by this Prime Contract, once building is enclosed.
 - a. Provide all necessary dust partitions, fans, temporary ducts, and barricades to properly contain and ventilate all Work area fumes and odors, created by demolition and new construction or alterations, directly to the outside. Ventilate to an area outside the building, sufficiently away from the building, as not to contaminate other areas. There will be no additional claims honored if the Construction Site Representative(s) requests additional ventilation or requirements.
 - b. Provide and exhaust air system for the project indoor areas that could produce fumes, VOC's, off gasses, dusts, mists, or other emissions.
 - c. System Operation:
 - 1) Provide temporary dust/fume protection at areas of Work of this Contract to limit contamination of surrounding areas. All cost incurred, by the Owner, for added cleaning expenses, due to the failure of this contract to provide and maintain adequate dust/fume protection, for the Work of this Contract, shall be borne by this Contract.
 - 2) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated.
 - 3) Exhaust air system shall operate for a minimum of 72 hours after Work is completed or until all materials have cured sufficiently so as to stop out – gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
 - 4) Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
4. Provide protection of all new surfaces during the Work.
5. Provide shoring required for Work of this Contract, including but not limited to;
 - a. Cutting or altering of existing construction.
 - b. Provide protection of all new and existing surfaces during the Work. Do not stand, walk, or Work from any unprotected finished surface above the floor.
6. Maintain temporary fencing and barricading to keep unauthorized persons away from excavations and hazardous areas for which this Prime Contract is responsible.
7. Traffic Controls: Provide flagman while any operations of this Prime Contract interfere with traffic flow on adjacent roadways.

1.10 PLUMBING CONSTRUCTION (PC) – CONTRACT NO. 4

- A. Applicable Drawings: All drawings itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
1. General (G-Series)
 2. Plumbing General (PG-Series)
 3. Plumbing (P-Series)
- B. Applicable Specification Sections: All specification Sections itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
1. Divisions 00 & 01 – All Sections
 2. Divisions 02 through 14 – Coordination related to this Prime Contract
 3. Division 22 - All Sections
 4. Divisions 23-34 – Coordination related to this Prime Contract
- C. Project Site Superintendent: PC shall provide a full-time on-site Project Site Superintendent while any Work related to this Contract is being performed on site(s), including the activities of their subcontractors, while other Prime Contracts are installing Work, or require the coordination of Work related to this Contract, and/or as requested by the Construction Site Representative(s).
- D. Scope of Work: The Work of this Prime Contract includes but is not limited to, the following:
1. Work delineation between building and site(s) is at five feet (5') outside of the face of building, existing and new, unless noted or assigned otherwise.
 2. Environmental Protection: Provide protection and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - a. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms on or near the Project site(s).
 - b. Refer to Division 01 Section "Work Restrictions" for additional information.
 3. Prime Contract shall understand that renovation Work may require Work to proceed while existing systems are required to be maintained; all cost associated with this sequence shall be anticipated and incorporated into the Bid.
 4. The plumbing Drawings are schematic in nature, and the PC will make adequate provisions to accommodate the actual field conditions without additional cost to the Owner.
 5. Provide all demolition of Plumbing Systems indicated in the Construction Documents, and/or required for Work of this Prime Contract.
 - a. Coordinate with all other Prime Contracts regarding all removals required for the Project.
 - b. Demolition of a system shall mean any and all components, removed in their entirety, to the point of origin or source.
 6. Provide valves, whether permanent or temporary, to permit shutoff and/or cap systems to achieve the Work of this Prime Contract.

7. Provide all typical building equipment including but not limited to, plumbing equipment and fixtures, supply, waste, drain and vent piping, as indicated in the Construction Documents.
8. GC shall provide concrete housekeeping and structural pads for equipment provided under this Prime Contract. PC shall coordinate size, orientation and location with GC, by way of providing physical layout, and verification prior to construction thereof.
9. GC shall provide all Work associated with creating structural openings or penetrations requiring lintels whether for their own Work or Work of the MC, EC or PC (i.e.: ductwork and pipe penetrations). This applies to all openings/penetrations greater than 8" through masonry or concrete walls.
 - a. MC, EC & PC shall indicate all required openings/penetrations requiring lintels on Coordination Drawings. Failure to note required openings/penetrations on the coordination drawings for the GC will require that the respective MC, EC & PC provide their own structural openings in accordance with the contract documents at no additional cost.
 - b. Non-structural openings/penetrations, including those for convenience, shall be self-provided by the respective GC, MC, EC or PC. This assignment applies to new and existing construction areas.
 - c. Refer to Structural documents for lintel type/size requirements and Architectural drawings for wall types. Walls not specifically identified in the documents are to be assumed as masonry construction.
 - d. All openings/penetrations are to be identified on Record Drawings by the Prime Contract requiring the opening.
10. GC shall provide all cut & patch Work related to that of their Prime Contract, and at those areas specifically identified on the Construction Documents, regardless of trade creating the area to be patched.
 - a. Each Prime Contract is responsible for all other respective Cutting & Patching required of their installations (refer to Section 017310 for further information).
11. PC shall hang streamers from all above ceiling equipment that will require access. This is in addition to any specification requirements for tags, labels, etc. Coordination Drawings shall highlight these areas for Architect and Engineer's review.
12. Provide installation of new plumbing system(s), or modifications of existing system(s) as indicated in the Construction Documents, complete and fully operational.
 - a. PC shall furnish all related electrical wiring and transformers for all equipment provided under this Contract, for coordinated installation by EC.
13. Provide thermal insulation and identification of all plumbing system/components provided/installed by this Prime Contract.
14. Provide all access doors/panels to access inaccessible installations (i.e. valves) provided by this Prime Contract, such as above hard ceilings or in walls.
15. Provide sleeves required for piping penetrating walls, slabs and/or decks.

16. Provide through-penetration fire stop systems at all penetrations made by this Prime Contract, maintaining listed ratings of indicated assemblies. Provide repair of existing through-penetration fire stopping damaged by Work of this Prime Contract.
 - a. Sleeves with fire stopping are to be installed in sequence with fire-rated construction. This Prime Contract shall be responsible for installing fire stopping material at intersection of sleeve and constructed materials.
 17. Provide coordination with, and notification to, the Construction Site Representative(s) for all specified testing, training, commissioning, etc., of the Work of this Prime Contract.
 18. Substantial Completion: Clean all PC installations and provided equipment at the time of Substantial Completion or as directed by Construction Site Representative(s).
 19. Coordinate all the preceding requirements, accordingly, with all applicable Alternates indicated in Division 01 Section "Alternates".
- E. Supplemental Temporary Facilities and Controls by PC include, but are not limited to, the following:
1. Waste Disposal Facilities:
 - a. General debris/refuse/construction waste containers (dumpsters) shall be provided by GC, for use by PC.
 - b. It shall be the responsibility of this Prime Contract to recycle metals generated by its Work, and the Work of its subcontracts.
 - 1) Joint effort recycling by all Prime Contracts is encouraged.
 2. Indoor air quality management at all areas of Work by this Contract, once building is enclosed.
 - a. Provide all necessary dust partitions, fans, temporary ducts, and barricades to properly contain and ventilate all Work area fumes and odors, created by demolition and new construction or alterations, directly to the outside. Ventilate to an area outside the building, sufficiently away from the building, as not to contaminate other areas. There will be no additional claims honored if the Construction Site Representative(s) requests additional ventilation or requirements.
 - b. Provide and exhaust air system for the project indoor areas that could produce fumes, VOC's, off gasses, dusts, mists, or other emissions.
 - c. System Operation:
 - 1) Provide temporary dust/fume protection at areas of Work of this Contract to limit contamination of surrounding areas. All cost incurred, by the Owner, for added cleaning expenses, due to the failure of this contract to provide and maintain adequate dust/fume protection, for the Work of this Contract, shall be borne by this Contract.
 - 2) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated.
 - 3) Exhaust air system shall operate for a minimum of 72 hours after Work is completed or until all materials have cured sufficiently so as to stop out – gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
 - 4) Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
 - 5) Refer to section "Work Restrictions" for further information.

3. Provide all shoring required for Work of this Contract, including but not limited to;
 - a. Cutting or altering of existing construction.
 - b. Provide protection of all new and existing surfaces during the Work. Do not stand, walk, or Work from any unprotected finished surface above the floor.
4. Maintain temporary fencing and barricading to keep unauthorized persons away from excavations and hazardous areas for which this Prime Contract is responsible.
5. Water: Provide temporary cold-water service, for use by all Prime Contracts for construction purposes. PC shall procure all related permits, coordinate with utility provider, and meet the requirements of the authorities having jurisdiction, in establishing, maintaining, and removing this temporary service.

1.11 GENERAL CONSTRUCTION – STAFF ROOM RENOVATION (SRR) – CONTRACT NO. 5

- A. Applicable Drawings: All drawings itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
 1. General (G-Series)
 2. Architectural Demolition (AD-Series) - Coordination related to this Prime Contract
 3. Site/Civil (C-Series)
 4. Structural (S-Series)
 5. Architectural (A-Series)
 6. Architectural Finishes (AF-Series)
 7. Electrical (E-Series)
 8. Plumbing (P-Series)
- B. Applicable Specification Sections: All specification Sections itemized are to be provided complete by this Prime Contract, unless noted otherwise, as follows:
 1. Divisions 00-14 – All Sections
 2. Divisions 22-28 – All Sections
 3. Divisions 30-34 – All Sections
- C. Project Site Superintendent: SRR shall provide a full-time on-site Project Site Superintendent while any Work related to this Contract is being performed on site(s), including the activities of their subcontractors, while other Prime Contracts are installing Work, or require the coordination of Work related to this Contract, and/or as requested by the Construction Site Representative(s).
- D. Scope of Work: The Work of this Prime Contract includes but is not limited to, the following:
 1. Work delineation between building and site(s) is at five feet (5') outside of the face of building, existing and new, unless noted or assigned otherwise.
 2. Prime Contract shall understand that renovation Work may require Work to proceed while existing systems are required to be maintained; all cost associated with this sequence shall be anticipated and incorporated into the Bid.

3. Environmental Protection: Provide protection and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - a. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms on or near the Project Site.
 - b. Provide dust control while Work of this Contract is being performed. Limit situations that may create dust contamination while Work of this Contract is idle.
 - c. Refer to Section 01 "Work Restrictions" for additional information.
4. Provide all Control Lines and Elevations as required. SRR shall transfer lines and elevations to other locations as necessary.
5. The Architectural Drawings are schematic in nature, and the CC will make adequate provisions to accommodate the actual field conditions without additional cost to the Owner.
6. Provide all demolition of General Construction Systems indicated in the Construction Documents, and/or required for Work of this Prime Contract.
 - a. Coordinate with all other Prime Contracts regarding all removals required for the Project.
 - b. Demolition of a system shall mean any and all components, removed in their entirety, to the point of origin or source.
7. Provide all doors, frames, hardware, windows, and glazing as per the Construction Documents.
8. Provide all cut and patch Work related to that of this Prime Contract, and at those areas specifically identified in the Construction Documents, regardless of trade creating the area to be patched.
 - a. Each Prime Contract is responsible for all other respective cutting and patching required of their installations (refer to Section "Cutting and Patching" for further information).
9. Provide finishes including, but not limited to; CMU, gypsum board assemblies, plaster, tile, and all paint, flooring and finishing systems.
 - a. Provide all associated surface preparation for each finish included in this Prime Contract.
 - b. Prep/Paint exposed structural steel and/or concrete including related deck, as indicated in the Construction Documents.
 - c. Prep/paint all exposed, unfinished ducts and conduit in related finished areas.
10. Provide all miscellaneous wood blocking, shimming and supports for items or equipment installed under this Prime Contract, and as coordinated with other Prime Contractors for metal strapping and/or wood blocking for installations of other Prime Contracts.
11. Provide all access doors/panels indicated, and those not indicated whereas inaccessible installations have been provided by this Prime Contract, located above hard ceilings or in walls.
12. Provide through-penetration fire stop systems at all penetrations made by this Prime Contract, maintaining listed ratings of indicated assemblies. Provide repair of existing through-penetration fire stopping damaged by Work of this Prime Contract.

- a. Sleeves with fire stopping are to be installed in sequence with fire-rated construction. This Prime Contract shall be responsible for installing fire stopping material at intersection of sleeve and constructed materials.
 13. Provide coordination with, and notification to, the Construction Site Representative(s) for all specified testing, training, commissioning, etc., of the Work of this Prime Contract.
 14. Substantial Completion: Clean all GC installations and provided equipment at the time of Substantial Completion or as directed by Construction Site Representative(s).
 15. Coordinate all the preceding requirements, accordingly, with all applicable Alternates indicated in Division 01 Section "Alternates".
 16. Provide plumbing scope as indicated on drawing sheet P.301.
 17. Provide electrical scope as indicated on drawing sheet E.301.
- E. Supplemental Temporary Facilities and Controls by GC includes but is not limited to:
1. Waste Disposal Facilities: Provide general debris/refuse/construction waste containers and waste management (dumpsters, off-site disposal of demolished/removed materials, etc.), for their own respective purposes, and for use by Mechanical, Electrical, and Plumbing Prime Contracts.
 2. Misc. Temporary Fences, Gates and Barricades: Provide and maintain temporary fencing and barricading to keep unauthorized persons away from interior and exterior excavations and/or construction areas for which this Prime Contract is responsible.
 - a. Coordinate via Construction Site Representative(s), at commencement of, and completion of construction areas, including but not limited to those indicated in the Construction Documents.
 3. Temporary Doors, Frames & Wall Assemblies: Provide, maintain and eventually remove all temporary installations per OSHA Regulations, Industry Standards, or as indicated in the Construction Documents.
 - a. Provide fire rated assemblies as required.
 - b. Provide exit (panic bar/crash bar) devices at locations of egress.
 - c. Coordinate locations with Construction Exiting Plan, Sequencing/Phasing Plans, and the Construction Site Representative.
 - d. Temporary doors shall be constructed using 1/2' plywood and 2x construction, equipped with hasps, locks, handle and latch mechanism, and spring or counter weight installed to allow door to close after opening.
 - e. Permanent doors will not be used in temporary conditions.
 4. Temporary Window Openings: Window openings shall be enclosed using 2x construction, 1/2' plywood, and reinforced polyethylene. Where window opening start at or near the floor, plywood shall be installed from finish floor to minimum of 42" AFF; reinforced poly may be installed from this point up. Should contractor choose to install plywood across the entire opening, sufficient area will be installed with reinforced poly to allow emergency escape, if required, and to allow natural light into the work area.
 - a. Installation shall be insulated if temporary heat or cooling is being employed.

5. Temporary Exterior Wall Enclosure: Provide and maintain temporary enclosures for weather protection and security of the construction in progress up until completion of permanent installation specified. Enclosures shall protect the building from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.
 - a. Where heating and cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with venting and material drying or curing requirements to avoid dangerous conditions and effects.
 - b. Install tarpaulins securely; install fire retardant materials only.
 - c. Where temporary wood enclosures exceed 100 sq. ft. in area, use fire retardant treated materials for framing and sheathing.
 - d. All cost incurred to repair and/or replace materials damaged, due to the failure of GC to provide and maintain weather tight enclosure shall be borne by this Prime Contract. This includes any contamination of materials that may lead to the introduction of mold and mildew.
 - e. Immediately notify the Construction Site Representative, in writing, as to damage to temporary enclosures by “others”; identify responsible party in the submission. Owner shall not be liable for damages caused by “others” if Prime Contract cannot identify responsible party.

6. Temporary Sanitary Facilities: Provide temporary self-contained toilets units for duration of the project for use by forces of all Prime Contracts (including abatement and demolition phases) and their subcontractors, until completion of Punch List work, and closeout of the Contracts.
 - a. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - b. Provide separate facilities (minimum of one ea.) for male and female personnel in proportion required by OSHA.
 - c. Shield toilets to ensure privacy.
 - d. Coordinate mobilization and demobilization of units with Construction Site Representative(s).
 - e. Toilets shall be cleaned at least once per week, with additional facilities or cleanings provided if requested by Construction Site Representative(s).
 - f. Provide and maintain adequate supply of toilet tissue and hand sanitizer for each facility.

7. Indoor air quality management at all areas of Construction, once building is enclosed.
 - a. Provide all necessary dust partitions, fans, temporary ducts, and barricades to properly contain and ventilate all work area fumes and odors, created by demolition and new construction or alterations, directly to the outside. Ventilate to an area outside the building, sufficiently away from the building, as not to contaminate other areas. There will be no additional claims honored if the Construction Site Representative requests additional ventilation or requirements.
 - b. Provide and exhaust air system for the project indoor areas that could produce fumes, VOC's, off gasses, dusts, mists, or other emissions.
 - c. System Operation:
 - 1) A sufficient quantity of exhaust fans in existing window openings or other approved locations shall be operated.
 - 2) Exhaust air system shall operate for a minimum of 72 hours after work is completed or until all materials have cured sufficiently so as to stop out –

- gassing of fumes or odors and area has been ventilated to remove all detectable traces of odors and fumes.
- 3) Maintain 25 feet clearance from all temporary exhaust outlets to all active building outdoor air intakes.
 - 4) Refer to Division 01 Section "Work Restrictions" for further information.
8. Project Signage: Provide Project sign(s), and any/all construction signage indicated in the Construction Documents.
 - a. Coordinate installation via Construction Site Representative(s).
 9. Provide all shoring required for Work of this Contract, including but not limited to.
 - a. Cutting or altering of existing construction.
 - b. Provide protection of all new and existing surfaces during the Work. Do not stand, walk, or work off of any unprotected finished surface above the floor.
 10. Maintain temporary fencing and barricading to keep unauthorized persons away from excavations and hazardous areas for which this Prime Contract is responsible.
 11. Traffic Controls: Provide flagman while any operations of this Prime Contract interfere with traffic flow on adjacent roadways.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011200

SECTION 283100 – FIRE DETECTION AND ALARM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. System smoke detectors.
 - 2. Notification appliances.
 - 3. Addressable interface device.

1.2 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.

1.3 SUBMITTALS

- A. Product Data: For each type of product, including finished options and accessories.
 - 1. Include construction details, material descriptions, dimensions, profiles and finishes.
 - 2. Include rated capacities, operating characteristics, and electrical characteristics.
- B. Shop Drawings: For fire alarm system:
 - 1. Floor plans (minimum 1/8-inch scale) with room names and numbers, showing device locations and interconnecting conduit and wire. Include location of fire/smoke rated or barrier walls.
 - 2. Drawings shall show proposed layout and anchorage of equipment and appurtenances and equipment relationship to other parts of the work, including clearances for maintenance and operation.
 - 3. Wiring diagram for each device. Include connection details to auxiliary equipment.
 - 4. Riser diagram showing devices, equipment, and interconnecting conduit and wire. Indicate points of connection to other equipment such as, damper actuators, kitchen hood fire protection systems, pre-action fire protection systems, clean agent fire protection systems, elevator machine rooms and shafts, electric door locking hardware, fire door releases, magnetic door holders, and other related devices and equipment.
 - 5. Complete narrative of the sequence of operation.

6. Sequence of operation matrix table including a complete line-by-line listing of fire alarm initiating devices, corresponding device address, and input/output matrix.
7. Voltage drop calculations.
8. Battery sizing calculations.
9. Visual alarm power supply sizing calculations.
10. Power supply calculations for magnetic door holders, and electric door locking hardware.
11. Wire identification schedule.
12. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this specification and in NFPA 72.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals. Include the following:
 1. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 2. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
 3. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
 4. Riser diagram.
 5. Device addresses.
 6. Record copy of site-specific software. This software shall also be in an electronic format to allow an alternate Authorized Distributor to add, change, or modify in any way, the existing system data base.
 7. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
 - a. Equipment tested.
 - b. Frequency of testing of installed components.
 - c. Frequency of inspection of installed components.
 - d. Requirements and recommendations related to results of maintenance.
 - e. Manufacturer's user training manuals.
 8. Manufacturer's required maintenance related to system warranty requirements.

9. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire alarm Level III technician.
- C. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.
- D. Manufacturer and equipment supplier shall have a minimum of ten years' prior experience in New York State. Equipment supplier shall have 24-hour parts and labor service available with a maximum 4-hour response time. There shall be a minimum of 2 Independent Authorized Distributors within a 50-mile radius of project. Proprietary equipment shall not be acceptable.

1.6 PROJECT CONDITIONS

- A. Perform a full test of the existing system prior to starting to work. Document any equipment or components not functioning as designed.
- B. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.
- C. Initiating and signaling device wiring circuits/loops/channels shall be loaded to no more than 80 percent (80%) capacity to allow for the installation of future devices.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.
 1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
- B. Warranty Period: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. The existing fire alarm system is a Fire-Lite MS-5UD-3 control panel. All new fire detection and alarm system components shall be of the same manufacturer and must meet all requirements of the contract documents.

- B. Products for this project shall be of the latest design that has been in service for at least two (2) years. Obsolete or discontinued models are not acceptable.

2.2 DESCRIPTION

- A. Fire alarm system infrastructure including conduit, wiring, backboxes, etc. and all associated labor and installation is in the scope of this contract.
- B. Shop drawings and submittal review/approval, testing and programming, project management and closeout documentation shall be by the fire alarm system manufacturer's authorized representative.
- C. Provide detailed system design, all equipment, tools, drawings, labor, materials, accessories, and approvals from governing agencies required to furnish, install, start up, and test a complete operating fire alarm system. Systems shall be provided and placed into operation in accordance with the requirements of the Authority Having Jurisdiction (AHJ).
- D. Labor, materials including conduit and wiring, and accessories not specifically called for in the Contract Documents but required to provide complete, operating, and approved systems, shall be provided within the scope of this contract.
- E. Determine, coordinate, and incorporate the design and construction requirements of the architectural, structural, fire protection and mechanical systems, and auxiliary systems including food service, fire doors and windows, elevators, and other related systems, to fully meet all code requirements.
- F. The fire alarm system manufacturer and Contractor shall provide all required documentation, obtain all required permits and approvals, and shall provide all devices and accessories in the quantities and locations necessary for a fully functional and code-compliant system.
- G. Programming of system shall be based on final room names and numbers, which may not necessarily be the same as those used on the construction documents.
- H. Noncoded, UL-certified addressable system, with multiplexed signal transmission.
- I. The Fire Alarm Control Panel (FACP) shall be connected in a network configuration to become components for a distributed intelligence system.
- J. The fire detection and alarm system shall be the fully addressable type. Each fire alarm initiating device shall be a separate, individual zone. Provide interface modules to connect non-addressable devices to addressable wiring channels.
- K. All components provided shall be listed for use with the selected system.
- L. 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 SYSTEM SMOKE DETECTORS

- A. General Requirements:
 - 1. Comply with UL 268 and FM approved; operating at 24V DC, nominal, Photoelectric type.

2. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
 3. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
 4. Integral Visual-Indicating Light: LED type, indicating detector alarm/power-on status.
 5. Thirty (30) mesh insect screen and magnetically activated test.
 6. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at FACP for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by FACP.
 - a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at FACP for 15 or 20 deg F per minute.
 - b. Multiple levels of detection sensitivity for each sensor.
 - c. Sensitivity levels based on time of day. Detector address shall be accessible from FACP and shall be able to identify the detector's location within the system and its sensitivity setting.
 8. An operator at FACP, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.
 - d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).
- B. Duct Smoke Detectors: Photoelectric type complying with UL 268A, 24V DC.
1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
 2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
 - a. Primary status.
 - b. Device type.
 - c. Present average value.
 - d. Present sensitivity selected.
 - e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Duct detector and housing shall be calibrated and adjusted for sensitivity at the manufacturer's factor to U.L. standards. Detector and housing shall be self-compensating for the effect of air velocity, temperature, humidity and atmospheric pressure.
5. Each duct detector shall be provided with sampling tubes sized according to duct size, air velocity, and installation conditions.
6. Each duct detector shall be provided with remote alarm LED on a single gang plate, surface or flush mounted.

2.4 NOTIFICATION APPLIANCES

- A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.
 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.
- B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.
- C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1 inch high letters on the lens.
 1. Rated Light Output:
 - a. 15/30/75/110 cd, selectable in the field.
 2. Mounting: Wall mounted unless otherwise indicated.
 3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
 4. Flashing shall be in a temporal pattern, synchronized with other units.
 5. Strobe Leads: Factory connected to screw terminals.
 6. Mounting Faceplate: Factory finished, red.

2.5 ADDRESSABLE INTERFACE DEVICE

- A. General:
 1. Include address-setting means on the module.
 2. Store an internal identifying code for control panel use to identify the module type.

3. Listed for controlling HVAC fan motor controllers.
 4. Devices shall be flush mounted in finished areas and surface mounted with back box in unfinished areas.
- B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts using NFPA 72A Style B (Class B, Two-Wire) circuit supervision. Module responds to polling signals from FACP/Transponder and shall report alarm initiating/supervisory circuit status changes to it.
- C. Control Module: Microelectronic module with one (1) individual addressable control relay with double-pole/double-throw (DPDT) contacts rated at two (7.0A) @ 120VAC/28VDC. Module response to control signals from FACP/Transponder.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.
1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.
- B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."
1. Devices placed in service before all other trades have completed cleanup shall be replaced.
 2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.
- B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.
- C. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.
- D. 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. Install all devices at the same height unless otherwise indicated.

- E. Visible Alarm-Indicating Devices: Install adjacent to each alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.
- F. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.3 PATHWAYS

- A. Fire alarm pathway and circuit wiring installation shall comply with NEC Article 760.
- B. Where exposed, all fire alarm circuits shall be installed in dedicated EMT conduit.
- C. Pathways above recessed ceilings and in inaccessible locations may be plenum-rated cable.
- D. All pathways must be independently supported from the structure above.
- E. Where passing through a wall or floor, provide a metal raceway or rigid nonmetallic conduit sleeve.
- F. All penetrations of rated walls and floors shall be properly fire-stopped.

3.4 IDENTIFICATION

- A. Provide an identification nameplate for each equipment cabinet. Nameplates shall correspond with labeling identified in the submittal drawings.
- B. Fire alarm conduit shall be permanently labeled "FIRE ALARM" every 30 feet.
- C. Fire alarm junction boxes shall be painted red.
- D. All initiating and indicating devices shall be labeled with self-adhesive tape with black lettering and identification labeling according to circuit loop and device address/number.
- E. Color code all wiring per recommended standards. Tag all wires in terminal cabinets with tie wrap tags with inked identification.
- F. Install framed instructions in a location visible from FACP.

3.5 GROUNDING

- A. Ground FACP and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to FACP.
- B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 TESTING

- A. The fire alarm system manufacturer or manufacturer's authorized representative shall test and inspect components, assemblies, and equipment installations, including connections.
- B. Tests shall be witnessed by District (Owner), Engineer of Record, and the Fire Department.
- C. The following tests and inspections shall be performed:

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.
 - b. Comply with the "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 the "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 visible appliances for the public operating mode according to manufacturer's written instructions.
 5. System manufacturer shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
- D. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- E. Fire alarm system will be considered defective if it does not pass tests and inspections.
- 3.7 CLOSEOUT DOCUMENTATION
- A. The fire alarm system manufacturer or manufacturer's authorized representative shall prepare and submit to the Engineer of Record all NFPA 72 required closeout documentation including, but not limited to:
1. System Record of Completion
 2. Notification Appliance Power Panel Supplementary Record of Completion
 3. System Record of Inspection and Testing
 4. Notification Appliance Supplementary Record of Inspection and Testing
 5. Initiating Device Supplementary Record of Inspection and Testing
 6. Periodic Inspection, Testing and Maintenance Documentation
- B. Record Drawings, to include:
1. Minimum 1/8" scale floorplan drawings indicating all final device types, locations, ratings, settings and addresses
 2. Wiring diagram of each device type

3. Riser diagram showing devices, device addresses, equipment, and interconnecting conduit and wire
 4. Narrative of sequence of operation
 5. Sequence of operation matrix (includes complete line-by-line listing for fire alarm initiating devices, device address and input/output matrix)
 6. Voltage drop calculations
 7. Battery sizing calculations
 8. Visual alarm power supply sizing calculations
 9. Power supply calculations for door holders
 10. Wire identification schedule
 11. Legend
- C. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.
- D. Operating instructions for mounting at fire-alarm control unit and each annunciator unit.
- E. Warranty documentation.

END OF SECTION 283100