TECHNICAL SPECIFICATIONS

DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

Division of Engineering

SECTION 011000 – DESCRIPTION OF WORK

PART 1 – GENERAL

1.1 GENERAL PROJECT DESCRIPTION

A. The scope of work of this project generally consists of the provision of all labor, material and equipment to perform Roof Replacement at the Executive High Rise Roof, Central Maintenance Facility 475 Saw Mill River Road Yonkers, New York and all related work as depicted on the accompanying Contract Drawings and the Technical Specifications.

B. Bids shall be received in accordance with the New York State Public Bidding Laws, this project will be executed under a SINGLE-PRIME CONTRACT as defined in the General Requirements.

C. Existing conditions are shown on the drawings to the best knowledge of the Architect. The Architect, however, cannot guarantee the correctness of the existing conditions shown and assumes no responsibility therefore. It shall be the responsibility of the Contractor to visit the site and verify all existing conditions.

1.2 REQUIREMENTS INCLUDED

A. Construction time and phasing requirements.

B. Proof of orders and delivery dates

C. Intent of Documents

D. Field Measurements

E. Initial Submittal Requirements

F. Design Responsibility

G. Additional Requirements

H. Mold and Dust Mitigation Requirements

I. Waste Management

1.3 ASBESTOS AND LEAD PAINT AWARENESS REQUIREMENTS

A. Contractor agrees not to use or permit the use of any asbestos containing material in or on any property belonging to the Owner.

B. For purposes of this requirement, asbestos free shall mean free from all forms of asbestos including -actinolite, amosite, anthrophyhllite, chrysotile, cricidolite and tremolite both in friable and non-friable states and without regard to the purposes for which such material is used.

1.4 CONSTRUCTION TIME AND PHASING REQUIREMENTS

A. The Contractor is advised the "time is of the essence" of the Contract. It is understood that the work is to be carried through to completion with the utmost speed consistent with good workmanship. Safe and legal ingress and egress shall be maintained at all times to and through the occupied portions of the construction site.

B. Storage areas shall be completely enclosed by a fence or barricade at all times so that no staff or the public can approach the area or the equipment. Coordinate with Section 01 15 00. The Contractor shall maintain fences and barricades at all appropriate areas and at all times and shall:

1. Provide signs posted on fence 20 feet on center that read “Work Area- Keep Out”
2. Maintain at all times, all exits, roadways and walkways from the Building.

Where the barricade is removed for work, the Contractor performing such work shall provide adequate safety personnel to prevent unauthorized persons from approaching the work area.

1.5 PROOF OF ORDERS AND DELIVERY DATES -Coordinate w/Section 01 33 00 and 01 32 00

A. Within 2 weeks after the approval of shop drawings, samples, product data and the like, the Contractor shall provide copies of purchase orders for all equipment and materials which are not available in local stock. The Contractor shall submit written statements from suppliers confirming the orders and stating promised delivery dates.

B. This information shall be incorporated within the progress schedules so required as part of Section 01 32 00 and shall be monitored so as to insure compliance with promised dates.

1.6 INTENT OF DOCUMENTS -**Regardless of hierarchy listed in reference paragraph, in cases of conflict as to the type or quality of materials to be supplied, the Specifications shall govern.**

1.7 FIELD MEASURE

A. Contractor shall take all necessary field measurements prior to fabrication and installation of work and shall assume complete responsibility for accuracy of same.

1.8 INITIAL SUBMITTAL REQUIREMENT

A. Contractor shall provide items noted including - bonds, insurance, emergency telephone numbers, progress scheduling, schedules of submittals, subcontractor listings, and the like prior to the start of any work.

B. Schedule of Values

1. Submit schedule on AIA Form G703
2. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement or as established in Notice to Proceed, whichever is earliest.

C. Payment Requisitions

1. Submit 1 copy of each application on AIA Form G702 and G703 AND 1 copy on County Voucher Format (format will be provided to GC).
2. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

3. Payment Period: Monthly.

1.9 SCHEDULES

A. General

1. The objective of this project is to complete the work in the shortest period of time and to protect the building and occupants from damages caused by construction activity during the progress of the work.
2. To meet these objectives, the Contractor shall plan the work, obtain materials, and equipment (not limited to hoists, scaffolding, lifts, etc.), and execute the construction on the most expeditious manner possible and in accordance with the requirements listed below.
3. If the Contractor fails to expedite and pursue any part of the work, the Owner may terminate the contract or may carry out the work as per applicable Article in the General Conditions.
4. The Contractor shall work in coordination with work of other Contractors and with activities with special attention to noise, dust, safety and other contract requirements for work in and around the occupied building.

B. Work Periods and Milestones

Submittals – Post Bid and Technical	Within seven (7) days of receipt of Notice to Proceed or Award
Construction Start	Within 15 days after receipt of Notice to Proceed (NTP)
Substantial Completion	90 days from NTP

1.10 ADDITIONAL WORK

A. If it appears that some of the work cannot be completed by the scheduled date, the Contractor shall increase the work force or increase the hours of work, including evenings and weekends or necessary, at no additional cost to the Owner. If the work is complete but the area is not cleaned and debris or equipment is not removed, the Owner shall have the right to prepare the area for occupancy with his own forces and deduct the costs from the Contract Amount.

B. If the Contractor fails to staff the job adequately to meet the completion date, the Owner reserves the right to assume possession of the material and complete installation with the Owner's forces or other Contractors or to require the Contractor to work evenings and weekends.

C. The Contractor is responsible for temporary protection of all work until acceptance.

1.11 MOLD AND DUST MITIGATION REQUIREMENTS

1. Should the buildings' HVAC systems be in operation during construction, Contractor shall install HEPA or other appropriate filters on air intake louvers to prevent dust and

fume intake into the system and to prevent spreading dust to adjacent offices and/or public.

2. Contractor shall install appropriate netting, tarps, polyethylene sheets or the like, as required to catch debris from demo operations and to prevent spreading dust.

1.12 WASTE MANAGEMENT PROCEDURES AND DEFINITIONS

A. Waste Management Coordination: Coordinate recycling of materials with Owner and as required to conform to the Construction Waste Management Plan defined in Section 01 74 19.

B. Contractor shall conduct Construction Waste Management meetings. At a minimum, waste management goals and issues shall be discussed at the following meetings:

1. Pre-bid meeting
2. Pre-construction meeting
3. Regular job-site meetings
4. Job safety meetings

C. Waste Management Definitions

1. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like
2. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations
3. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity
4. Non hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity, or reactivity
5. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure
6. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others
7. Recycle: To remove a waste material from the Project site to another site for remanufacture into a new product for reuse by others
8. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste
9. Return: To give back reusable items or unused products to vendors for credit
10. Reuse: To reuse a construction waste material in some manner on the Project site
11. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others
12. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water
13. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste

14. Toxic: Poisonous to humans either immediately or after a long period of exposure
15. Trash: Any product or material unable to be reused, returned, recycled, or salvaged
16. Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time throughout gassing including -solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywoods; and foam insulation.
17. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material
18. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled.

END OF SECTION

SECTION 012500 – PRODUCT OPTIONS AND SUBSTITUTIONS **(Coordinate with Article 29 of the General Clauses)**

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 REQUIREMENTS INCLUDED

A. Approved Equal Clause

B. Options

C. Contractor's Representation

D. Reimbursements

1.3 APPROVED EQUAL CLAUSE

A. Throughout the Specifications, types of material may be specified by manufacturer's name and catalog number in order to establish standards of quality and performance and not for the purpose of limiting competition.

Inclusion by name, of more than one manufacturer or fabricator, does NOT necessarily imply acceptability of standard products of those named. All manufacturers, named or proposed, shall conform, with modification as necessary, to criteria established by Contract Documents for performance, efficiency, materials and special accessories.

B. Contractor may assume the phrase "or approved equal" except that the burden is upon the Contractor to prove such equality and to satisfy Architect that proposed substitute is equal to, or superior to, the item specified.

However, in the event three (3) or more manufacturers are nominated within the technical specifications for a particular item, it shall be assumed that they have been predetermined as equal to each other and that the Contractor must furnish and install materials, equipment or apparatus of one of these so named. CONSERVATION: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 SUBSTITUTION REQUESTS

A. If the Contractor elects to prove such equality, he must request the Architect's and the Owner's approval in writing for substitution of such items for the specified items, stating the differences involved with and submitting supporting data and samples, if required, to permit a fair evaluation of the proposed substitution with respect to:
   1. Performance
   2. Capacity
   3. Delivery times and effect on schedules, if any

4. Changes in space requirements or effect on other elements of work (if applicable)
5. Efficiency
6. Safety
7. Function
8. Appearance
9. Quality and durability
10. Any required license fees or royalties
11. Availability of maintenance service, and source of replacement materials
12. Warranty terms and conditions
13. Cost data comparing the proposed substitution with the product specified

The contractor shall submit a separate request for each product, supported with complete data, with drawings and samples as are appropriate to substantiate the above.

B. The Architect will review requests for substitutions with reasonable promptness, and notify the Contractor, in writing, of the decision to accept or reject the requested substitution.

1.5 OPTIONS

A. Where Technical Specifications permit Contractor to select optional materials, items, systems, or equipment, the selection of such options is subject to the following conditions.
   1. Once an option has been selected and approved, it shall be used for the entire contract.
   2. The Contractor shall coordinate his selection with the drawings and specifications and make all necessary adjustments without additional cost to the Owner.

1.6 CONTRACTOR'S REPRESENTATION

A. A request for a substitution constitutes a representation that the Contractor:
   1. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.
   2. Will provide the same warranties or bonds for the substitution as for the product specified.
   3. Will coordinate the installation of an accepted substitution in the work, and make such other changes in the work as maybe required for installation to make the work complete in all respects.
   4. Will waive all claims for additional costs, under its responsibility, which may subsequently become apparent.
   5. **Will have coordinated installation with all affected trade contractors, specialty contractors and the like and will be responsible for any and all costs which may arise as a result of this substitution.**
   6. Changes in work of other trades, such as structural supports, which are required as a result of substitution and the associated costs for such changes shall be the complete responsibility of Contractor proposing substitution (there shall be NO additional expense to the Owner).

END OF SECTION 012500

SUBSTITUTION REQUEST FORM

To: _____ **Project:** _____

Section	Page	Paragraph	Specified Item

THE UNDERSIGNED REQUESTS CONSIDERATION OF THE FOLLOWING SUBSTITUTION: Attached data shall include, in a tabular format to provide a line by line comparison -product description, specifications, drawings, photographs, performance and laboratory tests and the like with applicable portions of said data clearly identified.

FURTHER, The Proposed Substitution WILL (OR WILL NOT) Affect:

Dimensions indicated on the drawings?_____
Wiring, piping, ductwork, or other building services indicated on the drawings?_____
Other trades and abutting or interconnection work? _____
Manufacturer's guarantees and warranties? _____
The construction schedule? _____
Maintenance and service parts locally available? _____

(NOTE -If Substitution WILL affect any item above, explain in detail.)

In addition to the above, the undersigned agrees to pay for

1 Any and all changes to the building design, including structural, civil or electro/mechanical systems engineering (if any), detailing; and
2 Any and all additional construction costs caused by the requested substitution.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

Section	Page	Paragraph	Specified Item

SUBMITTED:	DESIGN PROFESSIONAL'S COMMENTS	
By:	Accepted	Accepted as Noted
Firm: _	Not Accepted	Received Too Late
Address:		
		By:
Date:		Date:

SECTION 013113 – PROJECT COORDINATION

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 REQUIREMENTS INCLUDED

A. Coordination of Work

B. Trade Contractor Obligations

1.3 COORDINATION OF WORK

A. As required by the General Conditions, and restated herein, each Trade and/or Specialty Contractor or Subcontractor shall compare the architectural, structural, civil/site, mechanical, plumbing, and electrical Drawings and Specifications with those for all other trades and shall report any discrepancies between them to the Architect, through the General Contractor, and obtain from him written instructions for changes necessary to the work.

All work shall be installed in cooperation with other trades installing interrelated work.

Before installation, each Trade Contractor shall make proper provisions to avoid interference in a manner approved by the Architect.

All changes required in the work caused by neglect to so advise the Architect shall be made by the offending Contractor at his own expense.

B. Each Trade Contractor shall be responsible for exact location of anchor bolts, sleeves, inserts, supports, chases, conduits and openings that may be required for the work.

Attention is directed to Section 01 31 14. Each Trade Contractor shall prepare layout drawings for incorporation of items to be built-in the work, pass through the work and the like in sufficient time so as not to cause any undue delay in the execution of the work.

Built-in items shall be furnished under the same Section of the Specifications as the respective items to be supported, and they shall be installed, except as otherwise specified, by the trade furnishing and installing the material in which they are to be located.

Chases, conduits and openings shall be laid out in advance to permit provision in work.

Sleeves and inserts shall not be used in any portion of the building, where their use would impair strength or construction features of the building.

Extra work required where anchor bolts, supports, sleeves, chase openings, conduits or inserts

have been omitted or improperly placed shall be performed at expense of trade which made error or omission.

C. Slots, chases, openings and recesses through roof as specified will be provided for the various trades in their respective materials under general construction work, but the trade requiring them shall see that they are properly located and shall do any cutting and patching caused by the neglect to do so.

D. Locations of pipes, ducts, electrical raceways, switches, panels, equipment, fixtures, etc. shall be adjusted to accommodate the worktop interferences anticipated and encountered.

Each Trade Contractor shall determine, and submit for approval, the exact route and location of each pipe, duct and electrical raceway prior to fabrication.

Approval by the Architect is required prior to any such modifications.

E. The General Contractor shall provide temporary weather tight and protected openings in structure to facilitate placement of equipment.

1.4 TRADE CONTRACTOR OBLIGATIONS

A. The Trade Contractors are required to supply all necessary supervision and coordination information to any other trades who are supplying work to accommodate the electrical and mechanical installations.

B. Where a trade is required to install items which it does not purchase, it shall include for such items:
   1. The coordination of their delivery
   2. Their unloading from delivery trucks driven in to any designated point on the property line at grade level
   3. Their safe handling and field storage up to the time of permanent placement in the project
   4. The correction of any damage, defacement or corrosion to which they may have been subjected
   5. Their field assembly and internal connection as may be necessary for their proper operation
   6. Their mounting in place including the purchases and installation of all dunnage supporting members and fastenings necessary to adapt them to architectural and structural conditions unless support members are shown on structural or architectural drawings
   7. Their connection to building systems including the purchase and installation of all terminating fittings necessary to adapt and connect them to the building systems

C. Items which are to be installed but not purchased as part of the work of a particular trade shall be carefully examined by this trade upon delivery to the project.

Claims that any of these have been received in such condition that their installation will require procedures beyond the reasonable scope of the work of the installing trade will be considered only if presented in writing within one week of the date of delivery tithe project of the items in question.

The work of the installing trade shall include all procedures, regardless of how extensive,

necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

END OF SECTION 013113

SECTION 013114 – COORDINATION DRAWINGS AND PROCEDURES

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

B. Coordination of the work shall be performed as outlined below.

1.2 REQUIREMENTS INCLUDED

A. Scheduling (Coordinate with Section 01 32 00)

B. Coordination Drawings and Procedures -General Construction Work

C. Coordination Drawings and Procedures -Mechanical/Plumbing/Electrical Work

D. Meetings

1.3 SCHEDULING

A. Development of coordination drawings shall begin immediately.

B. Progress of coordination drawings must be reported at every project meeting until accepted.

1.4 COORDINATION DRAWINGS AND PROCEDURES-GENERAL CONSTRUCTION WORK

A. The Contractor shall provide fully integrated building, structural, mechanical/plumbing/electrical coordination drawings and field installation layouts for such work as directed by the Architect and/or required by job requirements so as to resolve tight field conditions except as modified in Paragraph 1.5 below.

B. These composite shop drawings and field installation layouts shall be coordinated in the field among the Contractors to verify the proper relationship to the work of other trades based on field conditions, and shall be checked for accuracy and approved by the Contractors before submission to the Architect for his review and concurrence and shall become the basis for more specific shop drawing submittals as required by the technical specifications.

1.5 COORDINATION DRAWINGS AND PROCEDURES – MECHANICAL/ELECTRICAL WORK

A. Mechanical/electrical work shall be coordinated as indicated by the following procedure.

B. The HVAC Contractor and/or the Sheet Metal Subcontractor shall prepare a complete draft set of drawings on "bond" to act as background drawings at scale not less than 3/8 inch equals 1 foot, showing structure and other information as needed for coordination. He shall show sheet metal layout thereon. Upon acceptance of these "bond" drawings, the HVAC Contractor shall plot, or have plotted, a final coordination set on Vellum and these will be the Coordination Drawings.

C. ALL FIREWALLS AND SMOKE PARTITIONS MUST BE HIGHLIGHTED ON THE SHEET METAL DRAWINGS FOR APPROPRIATE COORDINATION

D. The main paths of egress and for equipment removal, from mechanical and electrical rooms must be clearly shown on the coordination drawings.

E. Each of the below specialty trades shall add its work to these background drawings with appropriate elevations and grid dimensions using a color coding system to be developed between trades.

Specialty trade information is required for fan rooms and mechanical rooms, horizontal exits from duct shafts, crossovers, and for spaces in and above ceilings where congestion of work may occur such as corridors, and even entire floors.

Drawings shall indicate horizontal and vertical dimensions, to avoid interference with structural framing, ceilings, partitions, and other services.

1. Specialty Trades
    - Sheet Metal Subcontractor
    - Fire Protection Subcontractor
    - HVAC Piping and Associated Control Systems
    - Plumbing System
    - Electrical
    - General Contractor

F. Each specialty trade shall sign and date each mylar coordination drawing. Return drawings to the Sheet Metal Subcontractor, who shall route them sequentially to all specialty trades.

G. Where conflicts occur with placement of materials of various trades, the Sheet Metal Subcontractor will be responsible to coordinate the available space to accommodate all trades. Any resulting adjustments shall be initialed and dated by the specialty trade. The Sheet Metal Subcontractor shall then final date and sign each drawing. If he cannot

resolve conflicts, the decision of the General Contractor shall be final.

H. A Subcontractor who fails to promptly review and incorporate his work on the drawings shall assume full responsibility of any installation conflicts affecting his work and of any schedule ramifications.

I. Sheet Metal Subcontractor shall make copies of all coordination drawings. Fabrication shall not start until such transparencies of completed coordination drawings are received by the Architect/Engineer and have been reviewed.

J. Review of coordination drawings shall not diminish responsibility under this Contract for final coordination of installation and maintenance clearances of all systems and equipment with Architectural, Structural, Mechanical, Electrical and other work.

K. After Architect/Engineer Review:

1. After review of coordination drawings, the method used to resolve interferences not previously identified shall be as in 1.6 "MEETINGS" below
2. All changes to reviewed coordination drawings shall be approved in writing by the Architect/Engineer prior to start of work in affected area

L. Distribution of Coordination Drawings:

1. The Sheet Metal Subcontractor shall provide the following distribution of document
    - One vellum of each Coordination Drawing to each specialty trade and affected Contractor for their use
    - One vellum of each Coordination Drawing to Owner
    - One vellum of each coordination drawing to General Trades Contractor
    - One vellum of each coordination drawing to the Construction Manager

M. Coordination Drawings include but are not necessarily limited to:

1. Structure
2. Partition/room layout
3. Ceiling tile and grid
4. Light fixtures
5. Access panels
6. Sheet metal, coils, boxes, grilles, diffusers, etc.
7. HVAC piping and valves
8. Smoke and fire dampers
9. Soil, waste and vent piping
10. Water piping
11. Roof drain piping
12. Major electrical conduit runs, panel boards, feeder conduit and racks of branch conduit
13. Above ceiling miscellaneous metal
14. Fire Protection Systems
15. Heat tracing of piping
16. Equipment support, anchors, guides and seismic restraints

N. The color coded transparencies shall be kept at the Owner's Representative's field office for future reference in the event of conflict between the trades.

O. All coordination drawings shall be delivered to the Architect at the end of the project as part of the record drawing requirements set forth in Article 53 of the General Clauses.

1.6 MEETINGS – Coordinate with Article 39 of the General Clauses

A. Coordination meetings to resolve interferences in the work will be held at the project site under the direction of the Architect and Owner's Representative.

Representatives of each Contractor shall be present at each meeting.

Each Contractor shall provide the necessary manpower and/or overtime to insure that the coordination process described herein does not delay the Project Schedule.

END OF SECTION 013114

SECTION 013200 – SCHEDULING AND PROGRESS **(Coordinate with Article 45 of the General Clauses)**

1.1 DESCRIPTION

A. The Contractor shall develop a full schedule, in sufficient detail and clarity of form and technique so that the contractor can plan and control his work properly and the Architect and Owner can readily monitor and follow the progress for all portions of the work. The Contractor shall complete the detailed schedule within 15 days after contract award.

B. The schedule shall comply with the various limits imposed by the scope of work any by any contractually intermediate milestone dates and completion dates included in the contract.

C. The activities identified in the schedule shall be analyzed in detail to determine activity time durations in units of whole working days. All duration's shall be the result of definitive manpower and resource planning by the Contractor.

D. The activity data shall include activity codes to facilitate selection, sorting and preparation of summary reports and graphics. Activity codes shall be developed for:
   1. Area: Subdivision of the building and site into logical modules or blocks and levels
   2. Responsibility: contractor or subcontractor responsible for the work
   3. Specifications: CSI Master Format
   4. System: Division of the work into building systems for summary purposes
   5. Milestone: Work associated with completion of interim completion dates or milestones
   6. Pay Item: Work identified with a pay item on the Schedule of Values

1.2 REPORTS

A. For initial submittal and each update, the contractor shall prepare the following standard report.
   1. Tabular Schedule Report sorted by Activity code and Early Start

1.3 GRAPHICS

A. For initial submittal the contractor shall prepare the following graphics:
   1. Pure logic diagram (Precedence Format) of entire data, not time scaled, grouped by Activity code
   2. Detailed bar chart sorted by Activity Code with Early Start and Early Finish
   3. Summary bar chart summarizing by Activity Code with Early Start and Early Finish

B. For each update the contractor shall prepare the following graphic:

1. Bar Chart showing work activities with Early Start in the next 40 work days sorted by Activity Code and Early Start
2. Summary Bar Chart summarizing by Activity Code showing progress with Early Start and Early Finish

C. For each Change Order involving adjustment in the contract time for performance the contractor shall prepare a pure logic diagram showing the changed work with all predecessor and successor activities.

1.4 SUBMITTALS

A. In no case shall first application for payment be approved prior to submission of acceptable preliminary schedule, detailed submittal schedule, and schedule of values.

B. Monthly updates, required schedules and graphics shall be submitted to the Architect and Owner within five working days following the end of the preceding month. Monthly updates, schedules and graphics shall be submitted in five copies.

C. If any of the required submissions are returned to the Contractor for corrections or revisions, they shall be resubmitted within ten (10) calendar days after the return mailing date. Resubmittals shall be in the same quantities as noted above. Review and response by the Architect will be given within ten (10) calendar days after resubmission.

1.5 PAYMENT WITHELD

A. If the Contractor fails to submit the required material as indicated in this section within the time prescribed or revision thereof within the requested time, the Architect may withhold approval of Progress Payment Estimates until such time as the Contractor submits the required information.

1.6 UPDATES

A. Updates of the Schedule shall be made at the end of each month reflecting actual or reasonably anticipated progress as of the last working day of the month. Monthly updates of the Detailed Schedule will be made each month until all work is substantially complete.

B. The Contractor will meet with the Architect and Owner at the end of the updated period to review information in draft form before preparation of the required schedules and graphics. The Contractor will present data, prepared in advance, for review and approval of the Architect and Owner including:
1. Actual Start Dates
2. Actual Completion Dates
3. Activity percent complete and/or Remaining Duration

4. Revised logic, changes in activity duration's or resource assignments
5. Narrative report discussing progress through the update period; changes, delays or other circumstances affecting progress; status of the project with respect to completion schedule; and any efforts by the Contractor to improve progress

C. The update meeting will establish the values to be submitted for payment and will be directly related to the schedule of values in the application for payment.

D. The Contractor shall prepare a report of the meeting and make all changes, additions or corrections to the data resulting from the review. The contractor shall promptly prepare the monthly submittal following the update meeting.

1.7 CHANGES, DELAYS AND EXTENSIONS OF TIME

A. When changes or delays are experienced, the Contractor shall submit to the Architect and Owner a Time Impact Analysis illustrating the influence of each change or delay on the current Contract scheduled completion date. Each time analysis shall include a network analysis demonstrating how the Contractor proposed to incorporate the change or delay into the Detailed Schedule. Additionally, the analysis shall demonstrate the time impact based on the date the change was given to the Contractor, the status of construction at that point in time, and the activity duration of all effected activities. The activity duration used in this analysis shall be those included in the latest update of the Detailed Schedule, closest to the time of delay or as adjusted by mutual agreement.

B. Each Time Impact Analysis shall be submitted within ten (10) calendar days after a delay occurs or a notice of change order is given to the Contractor. In cases where the Contractor does not submit a Time Impact Analysis for a specific change or delay with a specified period of time, it shall be mutually agreed that no time extension is required. Final evaluation of each Time Impact Analysis by the Architect and Owner shall be made within fourteen (14) calendar days after receipt unless subsequent meetings and negotiations are necessary. Adjustments in the Contract time for performance shall be made only by written change order approved by the Owner. Upon approval of the Owner, Network diagrams illustrating the influence of changes and delays shall be incorporated into the Detailed Schedule by the contractor during the first update after agreement is reached.

END OF SECTION 013200

SECTION 013300 – SUBMITTAL REQUIREMENTS

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

B. Submittals shall be made in groupings where installations are complimentary, i.e. porcelain tile, grout, metal studs, gypsum board; etc. Failure to comply with this requirement will be cause for rejection of any or all submittals.

C. For purposes of LEED certification of this project, if sought by the Owner, the Contractor shall, as part of the submittal package. Submit the following documentation of:
   1. Recycled content from manufacturer for products with specified recycled content.
   2. Manufacturing locations and origins of materials for products either "manufactured" and/or "manufactured and sourced" within 500 miles of the project site.

1.2 REQUIREMENTS INCLUDED

A. Approved Equal Clause/Substitutions/Options
B. Certification
C. Manufacturer's Instructions
D. Shop Drawings
E. Samples
F. Material Safety Data Sheet (MSDS) Submittals
G. Scheduling of Submittals
J. Progress Photographs
K. Certificates
L. Construction Waste Management Procedures and Certifications – See Section 01 74 19.
M. V.O.C. Compliance certification – See individual technical sections.

1.3 APPROVED EQUAL CLAUSE/SUBSTITUTIONS/OPTIONS -Section 01 25 00

1.4 CERTIFICATION

A. Certification of compliance with specification performance standards and manufacturers' specifications and directions shall be furnished for any portion of this work for which specific performance requirements and/or manufacturers' specifications are listed.

It shall be the responsibility of the Contractor to secure two (2) copies of each certification when required and transmit same to the Architect.

B. Sample Certification Form (2 pages) is attached as an exhibit at the close of this Section. Each item requiring certification shall be so noted and affidavits shall be filed singly to cover each specified material, installation, application and the like.

CERTIFICATIONS SHALL BE SUBMITTED AS PART OF THE CLOSE OUT DOCUMENT REQUIREMENTS SET FORTH IN SECTION 01 77 00.

1.5 MANUFACTURERS' INSTRUCTIONS

A. Where in these specifications an item is called for to be installed in accordance with the manufacturer's directions, specifications or recommendations, the Contractor shall furnish the Architect with two (2) printed copies of said directions, specifications or recommendations, before the item is installed.

1.6 SHOP DRAWINGS

A. The following serves as a further definition of the requirements for shop drawing submittals as covered in Article 44 of the General Clauses:
1. The Contractor shall submit to the Architect with such promptness as to cause no delay in the work, layout, detail, schedule, setting, product data and shop drawings for each part of the work as specified or required.
2. BEFORE SUBMITTING ANY DATA FOR APPROVAL, THE CONTRACTOR SHALL CHECK THE SUBMITTALS OF ALL SUBCONTRACTORS FOR ACCURACY AND CONTRACT COMPLIANCE.

Contractor shall see that all work contiguous with and having bearing on work indicated on drawings is accurately and distinctly illustrated and that work shown is in conformity with contract requirements.

3. Shop drawings shall be numbered consecutively and shall represent:
   a. All working and erection dimensions.
   b. Arrangement and sectional views.
   c. Necessary details, including information for making connections to other work.
   d. Kinds of materials and finishes. Colors, where applicable.

4. Shop drawings shall be dated, and shall generally contain:
   a. Name and Number of project.
   b. Name, address and telephone number of submitting Contractor.
   c. Description of required equipment, materials, and classification item numbers.
   d. Locations at which materials or equipment are to be installed in the Work.
   e. Identification of drawings, schedules, notes and/or details and specification sections and related paragraphs to which they apply.
   f. Equipment or fixture identification corresponding to that used in Contract Documents.
   g. Accessories and special or non-standard features and materials which are being furnished.
   h. Properly marked with external connection identification as related to the project where they consist of standard factory assembly or field installation drawings.

In addition to the general data required above, applicable mechanical and electrical submissions shall contain:

a. Manufacturer's specifications including materials of construction, metal gauge, thickness and finish.
b. Certified dimensional drawings including clearances required for maintenance or access (coordinate with Section 01 31 14)

c. Performance data, ratings, operating characteristics, and operating limits.
d. Electrical ratings and characteristics.
e. Wiring and control diagrams, where applicable.
f. Certifications requested, including UL label or listing.
g. List of accessories which are required but are NOT being provided by the product manufacturer or are NOT being furnished under this Section.

Identify the Section(s) under which the accessories are being furnished.

5. Submission of data for approval shall be accompanied by letter of transmittal, in duplicate, containing the name of the project, Contractor's name, number of drawings, titles and other pertinent data.

6. Procedure for Submitting Shop Drawings and Product Data:

The contractor shall submit five (5) copies of data, for standard manufactured items, in the form of manufacturer's catalog sheets, showing illustrated cuts of the items to be furnished, scaled details, sizes, dimensions, performance characteristics, operating clearances, capacities, wiring diagrams and all other pertinent information.

NOTE - all such data shall have "review" stamp applied to each submittal prior to submittal.

Two copies of reviewed submissions will be returned to the contractor.

The average "turn around time" of any one in-house submittal by the Architect shall not exceed 15 business days for review and at least 20 business days when another consultant is involved.

a. For drawings returned “Resubmit”, “Amend & Resubmit”. “disapproved”, or “Rejected-Resubmit”, the original drawings shall be corrected and resubmitted, without any additional charges to the Owner, until final approval.
b. For drawings returned “Approved”, “No Exceptions Taken”, “approved as Noted”, and “Make Corrections Noted”, the contractor shall obtain and provide sufficient prints as required for the field.

NOTE: It is the responsibility of the contractor to confirm all dimensions, quantities, and the coordination of materials, systems and products supplied by him with other trades. Approval of shop drawings containing errors does not relieve the contractor from making corrections at his expense.

7. No work as called for by shop drawings shall be done until Architect's approval.
8. IF SUBMITTALS SHOW VARIATIONS FROM CONTRACT REQUIREMENTS BECAUSE OF STANDARD SHOP PRACTICES, OR OTHER REASONS, CONTRACTOR SHALL MAKE SPECIFIC MENTION OF SUCH VARIATION IN HIS LETTER OF TRANSMITTAL.
9. APPROVAL OF SHOP DRAWINGS IS GENERAL. IT SHALL NOT RELIEVE CONTRACTOR OF THE RESPONSIBILITY FOR ACCURACY OF SUCH DRAWINGS, NOR FOR THE FURNISHING OF MATERIALS OR PROVISION OF WORK REQUIRED BY THE CONTRACT AND NOT SHOWN ON THE SHOP DRAWINGS.

Unless it is an interpretation of design intent, approval of shop drawings shall not be construed as approval of departures from Contract.

10. If the Contractor should alter any information on previous submittals, besides the notations called for by the Architect, he must circle this new information to bring it to the Architect's attention.

11. **In submitting data for approval, all associated drawings, product data and the like, relating to a complete assembly shall be submitted at one and the same time so that each may be checked in relation to the entire proposed assembly.**

PARTIAL SUBMISSIONS WILL BE RETURNED WITHOUT ACTION TAKEN.

12. Contractor shall have copies of all approved shop drawings as listed in Paragraph 1.6.A.6 above on the job at all time sand shall make them available to the Architect or the Owner's representatives.

1.7 SAMPLES

A. The following serves as a further definition of the requirements for sample submittals as covered in Article 44 of the General Clauses:

1. Names of proposed manufacturers, materials men and dealers who are to furnish materials, fixtures, appliances or other fittings shall, where practical, be submitted to the Architect for early approval to afford proper investigation and check.
2. No manufacturer will be approved for any materials to be furnished under this contract unless he shall be of good reputation and shall have plant of ample capacity and shall have successfully produced similar products.
3. All transactions with manufacturers and subcontractors shall be through the Contractor.
4. Unless otherwise specified, samples shall be in duplicate (2) and of adequate size to show quality, type, color, range, finish, texture, etc.

INTERRELATED COLOR SELECTIONS WILL NOT BE MADE UNTIL ALL PERTINENT SAMPLES ARE MADE AVAILABLE TO ARCHITECT.

Deliver one (1) sample to field office and one (1) sample to Architect's office unless otherwise directed.

5. Each sample shall be labeled, bearing material and quality names, submitting Contractor's name, and project name, and other pertinent data.

In accordance with OSHA regulation Number 1910.1200, a Manufacturers Material Safety Data Sheet (MSDS) shall be submitted for each product to be incorporated in the work.

Failure to observe these submittal requirements will be cause for rejection of the entire submittal.

The safe handling of products by the applicator according to MSDS warnings is a safety

issue, like any other, entirely within the purview of the General Contractor.

6. Where Specifications require manufacturer's printed installation directions, such directions and diagrams shall accompany samples. Coordinate with Paragraph 1.05 herein.
7. A duplicate letter of transmittal from the submitting Contractor requesting approval of the sample shall accompany the samples.
8. Transportation charges to designated locations must be prepaid on all samples.
9. Materials shall not be ordered until approval is received in writing from the Architect. All materials shall be furnished equal in all respects to the samples which were approved.

1.8 MATERIAL SAFETY DATA SHEET (MSDS) SUBMITTALS

A. As specified in Paragraph 1.7 of this Section and within the technical sections forming this Specification, the Contractor is directed to the following requirements concerning "MSDS" submittals:
1. Submit MSDS's for all products used during construction whether incorporated within the work or used in the performance of the work.
2. Identify which products may be harmful to construction workers or other building occupants.
3. Develop means and methods for protection of construction workers and other building occupants from potentially harmful products. **Submit said means and methods to the Owner for review and approval**.

B. Further, the General Contractor with assistance from each individual contractor shall maintain a "MSDS" file on site, accessible to workers and otherwise in compliance with jurisdiction's "Right To Know" legislation.

C. **Attention is directed Section 01 77 00, Article 1.4.A.12 for final closeout submittal of MSDS compilation to the Owner**.

1.9 SCHEDULING OF SUBMITTALS

A. Within two (2) weeks after execution of the Contract, the Contractor shall submit a detailed listing of all items to be incorporated within the work, including all items of mechanical and electrical, as applicable.

Listing should state the following:
1. Date of shop drawing/sample submittals.
2. Guaranteed delivery date after shop drawing and/or sample approvals.
3. Date of installation start.
4. Date of installation completion.

1.10 PROGRESS PHOTOS

A. This Article includes requirements for periodic construction photography by the General Contractor, utilizing digital camera equipment, to demonstrate construction progress and to serve as a communicative device when describing a given condition to others at a remote location, by means of the internet.

B. Photography shall be taken using a digital camera and electronic program which will download the digital photos in a JPEG format to a computer with resolution adequate to demonstrate the item under discussion.

C. One set of record prints will be required and filed with the monthly requisition. The JPEG files shall be transmitted to the appropriate parties who shall then have the option to view the picture(s) on screen or print them out using their own equipment.

D. It is the intention of this Section to provide a tool to enhance communications and reduce the amount of time required to address questions arising at the Project site. In this end, the Contractor shall utilize good judgment in providing photographs that are informative, and not merely repeating what is shown in the other photographs.

E. Provide factual representation of construction extent and conditions. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion, utilizing a normal lens.

F. Before starting work, the Contractor shall take photographs of the site from different points of view sufficient in number to show all present conditions.

G. The minimum requirements, per requisition period are six (6) photographs of each of the Building units, and three (3) photographs of the Site Work, from different points of view designated by the Architect.

1.11 CERTIFICATES

A. Submit a Summary of Solid Wastes Generated, manifests, weight tickets, and the like in accordance with requirements of Section 017419 -Construction Waste Management.

B. Submit, as required by each technical section a certification for V.O.C. compliance.

END OF SECTION 013300

SECTION 013513 – SPECIAL REQUIREMENTS

1.1 GENERAL

A. Attention is directed to the Information For Bidders and the General Clauses and all Sections within Division 1 - General Requirements which are hereby made a part of this Section of the Specifications.

B. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 DESCRIPTION OF REQUIREMENTS

A. Supplementary Definitions
B. Field Engineering – Coordinate with Section 01 71 23.
C. Reference Standards and Applicable Laws and Permits.
D. Protection of property and the public. Coordinate with Article 13, 14 and 20 of the General Clauses.
E. Noise Control. Coordinate with Article 45 of the General Clauses and Section 01 15 00.
F. Utility Shutdowns.

1.3 SUPPLEMENTARY DEFINITIONS - Supplement Article 2 of the General Clauses.

A. PROVIDE: The Term "provide" shall mean "furnish and install complete and ready for safe and regular use and/or operation of the item, material or service indicated".
B. INDICATED AND SHOWN: Shall mean as detailed, scheduled, or called for in the Contract Documents.
C. The terms "KNOWLEDGE," "RECOGNIZE" and "DISCOVER," their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill, and diligence required by the Contract Documents. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill and diligence required of the Contractor by the Contract Documents.
D. The phrase "PERSISTENTLY FAILS" and other similar expressions, as used in reference to the Contractor, shall be interpreted to mean any combination of acts and omissions, which causes the County's Architect/Engineer to reasonably conclude that the Contractor will not complete the Work within the Contract Time, for the Contract Sum or in substantial compliance with the requirements of the Contract Documents.
E. Words in the singular shall also mean and include the plural, wherever the context so indicates, and words in the plural shall mean the singular, wherever the context so indicates.
F. Wherever the terms "shown on drawings" are used in the specifications, they shall mean "noted", "indicated", "scheduled", "detailed", or any other diagrammatic or written reference made on the drawings.
G. The term "Furnish" shall mean "to fit out and/or supply" material required for project use.
H. The term "INSTALL" shall mean "set", "connect", "erect", "apply" or to "otherwise fix into position for use".
I. Whenever the terms "material" or "materials" are used in the specifications, they shall mean any "product", "equipment", "device".

J. The terms "approved" or "approval" shall mean the written approval of the Architect/Engineer.
K. The terms "directed", "required", "permitted, "ordered", "designated", "prescribed" and similar words shall mean the direction, requirement, permission, order, designation or prescription of the Architect/Engineer; the terms "approved", "acceptable", "satisfactory" and similar words shall mean approved by, acceptable or satisfactory to the Architect/Engineer; and the terms "necessary", "responsible", "proper", "correct" and similar words shall mean necessary, reasonable, proper, or correct, in the judgment of the Architect/Engineer.
L. "Concealed" means hidden from sight in chases, furred spaces, shafts, hung ceiling, embedded in construction or in crawl spaces.
M. "Exposed" means not installed underground or "concealed" as defined above as well as work visible to building occupants.
N. "Invert Elevations" means the inside bottom of pipe.
O. "The Contractor" or "Contractor" meaning that Contractor normally responsible for that work referenced;
   1. The term “Specialist” or “Specialty Contractor” as used in these specifications shall mean an individual or firm of established reputation, or, if newly organized, whose personnel have previously established a reputation in the same field, which is regularly engaged in, and which maintains a regular force of workmen skilled in either manufacturing or fabricating items required by the Contract, installing items required by the Contract, or otherwise performing work required by the Contract.

   2. Where the Contract Specifications require installation by a “Specialist”, that term shall also be deemed to mean either the manufacturer of the item, an individual or firm licensed by the manufacturer, or an individual or firm who will perform such work under the manufacturer's direct supervision.

1.4 FIELD ENGINEERING

A. Provide field engineering services; establish grades, lines and levels, by use of recognized engineering survey practices, as applicable.

1.5 REFERENCE STANDARDS AND APPLICABLE LAWS AND PERMITS – Coordinate with Information for Bidders and the General Clauses.

A. All materials and work provided under this contract shall be in accordance with all applicable federal, state and local laws, regulations, ordinances, codes, standards and orders, and the contractor shall be responsible for all documents, applications, plans, etc. and payment of all fees to secure all required permits and approvals to complete the work in accordance with all requirements of this contract.
B. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes or within these Contract Documents.
C. The date of the standard is that in effect as of the Advertisement date, except when a specific date is specified.
D. Obtain copies of standards when required by Contract Documents. Maintain copy at jobsite during progress of the specific work.
E. Where specific performance requirements are listed herein , it is the intent of this specification that all manufacturers, fabricators, suppliers, installers, contractors, subcontractors, specialty and sub-subcontractors will provide services satisfying these requirements whether mentioned by trade or manufacturers name or submitted for approval as an approved or equal.

F. Where no explicit quality or standards for materials or workmanship are established for work, such work shall be of such quality consistent with industry standards and of the construction quality established for the Project generally.

1.6 PROTECTION OF PROPERTY AND THE PUBLIC; USE OF PREMISES

A. The Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.

B. This provision does not supersede any specific requirements for methods of construction or applicable conditions set forth in the General and General Clauses with added regard to performance obligations of the General Contractor.

C. The General Contractor shall take steps to prevent the introduction of pollutants and dust into the ventilation system during construction.

1.7 NOISE CONTROL - Coordinate with Section 01 15 00, Most Restrictive Provisions Apply.

A. Develop and maintain a noise abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
B. Execute construction work by methods and by use of equipment which will reduce excess noise.
C. Equip air compressors with silencers, and power equipment with mufflers.
D. Manage scheduling to reduce noise.

1.8 UTILITY SHUTDOWNS

A. When installation of a partial or a complete new system or modifications to an existing system requires shutdown of an operating system, the connection of the partial system shall be performed only after prior notification of the estimated shutdown time periods have been approved by the Owner and the Architect/Engineer and then only in the following time periods.

Advance Notification Time Required:
- Fire Alarm Shunts – 7 days
- Electrical and/or Plumbing shutdowns – 2 weeks

B. The Contractor shall do all work involved in shutdown period when scheduled and/or directed by the Architect/Engineer and at no additional expense to County.

C. Certain service "cut-in" may require overtime operations which will be accomplished at no extra cost to County.

1.9 ADDITIONAL INSURANCE REQUIREMENTS – **(ONLY FOR PROJECTS THAT INCLUDE ASBESTOS ABATEMENT WORK)**

A. . See GENERAL REQUIREMENTS- Additional Insurance Requirements – page 1.5

1.10 SPECIAL PROVISIONS FOR CONSTRUCTION

A. Work Times: Monday to Friday between 8:00 am and 4:00 pm.
B. Contractors are to use area designated for dumpsters and staging as approved by the Owner. Contractor's storage of materials to be in secure containers.
C. There will be contractor parking on site.
D. There will be Contractor Criminal background checks as per Executive order 1-2009-8.

END OF SECTION 013513

SECTION 013529 – HEALTH AND SAFTEY PLAN

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 REQUIREMENTS INCLUDE

A. Provide all labor, equipment and materials and perform all operations in connection with monitoring air quality, decontaminating equipment and providing worker health and safety protection for all Contractor and Subcontractor personnel.

B. Develop a site specific Health and Safety Plan (HASP) specifically addressing the potential hazards that may be encountered. This plan shall meet all Occupational Safety and Health Administration (OSHA) requirements.

C. Review the requirements and data presented and supplement the program with any additional measures deemed necessary to fully comply with regulatory requirements and adequately protect personnel on the site.

1.3 REFERENCES

A. OSHA Regulation 29 CFR 1910.120.

B. OSHA Regulation 29 CFR 1926.62.

1.4 DEFINITIONS

A. Site Safety Official (SSO): The individual who is responsible to the Contractor and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements

1.5 SUBMITTALS

A. Provide within seven (7) days after execution of the Agreement.

1. Site-specific HASP including the Emergency Response Plan to the Owner, Owner’s Representative and Architect for review, including provisions for decontamination and a contingency plan for unforeseen emergencies. The review is only to determine if the HASP meets basic regulatory requirements and the minimum requirements of this Section. The review will not determine the adequacy of the HASP to address all potential hazards, as that remains the sole responsibility of the Contractor

2. Current certification of employee's health and safety training and certification of employee's baseline medical exam status

3. Certification of additional required health and safety training for Supervisors

4. Qualifications and experience of the SSO for approval

B. Submit minutes of weekly safety meetings at periodic progress meetings.

1.6 CONTRACTORS RESPONSIBILITIES

A. Contractor is solely responsible for the health and safety of workers employed by the Contractor,

any Subcontractor and anyone directly or indirectly employed by any of them

B. Develop and follow a site specific Health and Safety Plan (HASP) in accordance with the requirements of paragraph 1.7

C. Provide a full-time SSO regardless of whether or not the Work is at a defined Uncontrolled Hazardous Waste Site.

D. Pre-arrange emergency medical care services at a nearby hospital, including establishment of emergency routes of travel.

E. Meetings:

1. Conduct daily job briefings with all site personnel to discuss relevant health and safety issues including but not limited to hazards, monitoring, procedures and controls. Document attendance and topics covered.

2. At a minimum, conduct weekly safety meetings with all site personnel, documenting attendance and topics covered.

1.7 HEALTH AND SAFTEY PLAN (HASP) REQUIREMENTS

A. Temporary overhead protection for interior of building:

1. safety and health hazard assessment
2. procedures for emergency medical treatment and first aid
3. map indicating route to hospital for emergency medical care
4. physical hazard evaluation
    a. equipment operation
    b. confined space entry
    c. slips and falls
    d. falling debris
    e. encountering unmarked utilities
    f. cold and heat stress
    g. hot work (cutting and welding)
5. Training requirements
6. Recordkeeping requirements

END OF SECTION

SECTION 015000 – TEMPORARY FACILITIES
(Coordinate with Article 46 and 48 of the General Clauses)

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

B. Temporary facilities indicated to be provided by a Contractor for the use of his Subcontractors and/or other Contractors shall mean for their use without payment for such use unless otherwise specified.

1.2 REQUIREMENTS INCLUDED

A. Temporary and Permanent Services, General
B. Temporary Light and Power
C. Temporary Heating/Cooling Facilities
D. Temporary Toilet Facilities
E. Temporary Water
F. Storage Facilities
G. Scaffolding and Staging
H. Roof Protection
I. Temporary Use of Permanent Elevator as Equipment Material Hoist
J. Rubbish Container
K. Construction Fencing
L. Janitorial Service/Daily Cleanup
M. Fire Prevention Control
N. Temporary Fire Protection
O. Discontinuance, Changes and Removal

1.3 TEMPORARY SERVICES, GENERAL

A. The Contractor shall provide and maintain, either directly or through its' subcontractors, all temporary services and utilities, including all labor, materials, equipment and the like necessary to adequately furnish, deliver and maintain said services at all times when required during the term of the Contract.

NOTE: In accordance with OSHA and other applicable regulations, the respective Contractors performing work are solely responsible for the netting, guard rail protection and such other safety devices as deemed necessary to protect the workers and public from harm.

1.4 TEMPORARY LIGHT AND POWER

A. The Contractor shall
   1. Provide all required temporary electric facilities as required for this project from Owner supplied service as outlined below.
   2. Insure that all temporary electrical work shall be in conformity with the National Electric Code and in accordance with applicable governmental regulations.
   3. MAINTAIN AND SERVICE THE TEMPORARY ELECTRIC SYSTEM. The energy will be supplied, **and paid for**, by the Owner for all work. No reimbursement will be made by Owner in the event of disconnect.

B. The Contractor shall provide and maintain.

1. A feeder network of sufficient size and capacity for all requirements of construction, except welding and shall maintain same while under construction and until the permanent feeders and related equipment have been installed and are in operation.
2. Equip each branch circuit with lamp sockets and fused grounding type outlets for 120 and 208, 240 volt, single phase power. Provide lamp sockets of weatherproof medium base type. The power outlets shall consist of an approved box with cover containing fuse holders and grounding type outlets, Buss Type SRX and SKY.
3. Fuse cutout bases for each branch circuit. The total load on each branch circuit (light and power) shall not exceed twenty (20) amperes.
4. All lamps and fuses (including replacements for temporary lighting and power). **Provide 13 watt LED or equivalent lamp for each lighting outlet.**
5. All equipment requiring other than 120 v/ 60 cycle/ single phase operation, as well as welders, shall be run under portable generators or from step-up transformers furnished by the trades requiring same.
6. Provide all wiring and equipment for temporary lighting and power so that service shall be available to the work.
7. Provide temporary light based on a minimum of 1 watt per square foot covering each and every square foot of roof area. For work on roof, provide adequate outdoor lighting to illuminate hazards and to satisfy minimum requirements of safety and security, subject to Architect's and Owner's approval.
8. Upon completion of all work and or when directed by the Architect, remove all temporary wiring and ancillary work.
9. Temporary light and power will be made available during all hours of operation of Contractor without additional costs to the owner.

1.5 TEMPORARY HEATING/COOLING FACILITIES

A. The Contractor shall provide and pay for all temporary heating, coverings and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work and to facilitate the completion thereof. The Contractor shall maintain the critical installation temperatures, provided in the technical provisions of the specifications, herein, for all work in those areas where same is being performed.

B. The maintenance of proper heating, ventilation and adequate drying out of the work is the responsibility of the Contractor and any work damaged by dampness, insufficient or abnormal heating shall be replaced to the satisfaction of the Architect by and at the sole expense of the Contractor.

C. Unless otherwise specified, the minimum temperature shall be 50 degrees F at all places where work is actually being performed within the enclosed Project.

1.6 TEMPORARY TOILET FACILITIES

A. All maintenance and restoration of facilities is the responsibility of the General Contractor upon completion at no cost to the Owner.

1.7 TEMPORARY WATER – By Owner

A. The Owner will provide water service to the Contractor without charge, but reserves the right to terminate, without incurring additional cost, said service in the event of abuse of such service.

B. The Contractor shall make all necessary connections and extend piping to areas required at no additional cost to the Owner.

C. The Contractor shall have all equipment for the temporary water removed at the completion of the Project or when directed by the Architect or Owner.

1.8 STORAGE

A. Materials delivered to the site shall be safely stored and adequately protected against loss or damage. Particular care shall be taken to protect and cover materials that are liable to be damaged by the elements.

1.9 SCAFFOLDING AND STAGING

A. All scaffold, staging and appurtenances thereto shall comply in total to the requirements of Safety and Health Regulations for Construction Chapter XVII of OSHA, Part 1926 and all related amendments.

B. Shop Drawing Submittals for scaffolding and bridging are required and shall be stamped and signed by a NYS licensed structural engineer.

1.10 ROOF PROTECTION – **As Applicable to Scope of Work.**

A. During the construction period, after installation of roofing system specified under Division 7, and notification from Manufacturer as to certified completeness, the Contractor shall take strict precautions against unnecessary traffic on the roofing surface.

B. The Contractor shall provide temporary protection on the roof surface when it is necessary for work to take place on completed sections.

C. Upon such notification as required in subparagraph A, the Contractor shall assume responsibility for damages, if any, to the roofing system caused by the work of other trades, except that financial liability for any and all damages rests with the offending trade.

1.11 TEMPORARY USE OF PERMANENT ELEVATOR AS EQUIPMENT MATERIAL HOIST – **Elevators are not available.**

1.12 RUBBISH CONTAINER

A. Provide suitable rubbish container device (s), properly maintained and serviced, replaced as required and protected from access by the public by fencing as may be specified herein or approved by the Architect.

B. Each Subcontractor shall sweep up and gather together daily all his own rubbish and removed materials and place same in containers to be provided by the Contractor. Wood crates and similar matter shall be broken up, securely tied into bundles and stacked alongside rubbish containers OR in locations as directed by the Contractor. Items larger then container capacity shall be removed from the site by the respective contractor.

C. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENT OF RELOCATION OF THE COMPLETE REMOVAL SYSTEM AT VARIOUS TIMES THROUGHOUT THE PROJECT AS MAY BE REQUIRED TO MAINTAIN PROGRESS OF THE WORK.

1.13 CONSTRUCTION FENCING – Coordinate with Staging/Exiting Drawings as applicable to the particular project.

A. Construction fencing shall be provided enclosing all work and storage areas or where indicated on the drawings. Unless otherwise shown or directed, all fencing shall be 8 feet high, accurately aligned and plumb, adequately braced, and complete with gates, locks, and hardware as required.

UNDER NO CONDITIONS SHALL FENCING BE ATTACHED OR ANCHORED TO EXISTING CONSTRUCTION OR TREES.

Fencing shall be as follows:

1. Fencing traversing paved areas shall be free standing sandbagged barrier type in a continuous manner, firmly aligned and securely mounted. Fencing shall essentially consist of heavy timber wood sill with chainlink fencing consisting of 2 inch posts with top and bottom rails of 1inch pipe and No. 9 wire fabric. All fencing shall be galvanized.
2. Fencing traversing "grassed areas" shall be chainlink fencing consisting of 2 inch posts with top and bottom rails of l inch pipe and No. 9 wire fabric. All fencing shall be galvanized. Posts shall be set below grade a minimum of 2foot and firmly anchored.

B. Site access gates shall be provided as required of same material as site fence complete with all operating hardware and security devices.

C. Contractor shall submit drawings showing type, materials and construction of fencing to Architect for approval before proceeding with installation.

D. All wood or metal products, unless galvanized, shall receive 2 coats of latex exterior paint of color and manufacturer as approved by the Architect.

E. Should fencing be required to be relocated during the course of the project, same shall be done at the total expense of the Contractor. At the completion of the project, the Contractor shall remove and dispose of the construction fencing.

F. The construction fence shall be MAINTAINED IN GOOD ORDER by the Contractor throughout the life of the project.

1.14 JANITORIAL SERVICE/DAILY CLEANUP

A. The Contractor shall furnish daily janitorial services for the project and perform any required maintenance of facilities as deemed necessary by the Architect during the entire life of the contract. Toilet facilities shall be kept clean and sanitary at all times. Services shall be accomplished to the satisfaction of the Architect. The Contractor shall provide daily trash collection and cleanup of the project area and shall dispose of all discarded debris, and the like in a manner approved by the Architect.

1.15 FIRE PREVENTION CONTROL

A. All Contractors shall comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to the work and, particularly , in connection with any cutting or welding performed as part of the work.

1.16 TEMPORARY FIRE PROTECTION

A. Each Contractor shall take all possible precautions for the prevention of fires. No flame cutting torches, blow torches, or welding tools shall be used within the building.

C. No volatile liquids shall be used for cleaning agents or as fuels for motorized equipment or tools within a building.

1.17 DISCONTINUANCE, CHANGES AND REMOVAL

A. All Contractors shall:

1. Discontinue all temporary services required by the Contract when so directed by the Owner or the Architect.

The discontinuance of any such temporary service prior to the completion of the

work shall not render the Owner liable for any additional cost entailed thereby and each Contractor shall thereafter furnish, at no additional cost to the Owner, any and all temporary service required by such Contractor's work.

2. Remove and relocate such temporary facilities as directed by the Owner or the Architect without additional cost to the Owner, and shall restore the site and the work to a condition satisfactory to the Owner.

END OF SECTION 015000

SECTION 015719 – ENVIRONMENTAL PROTECTION DURING CONSTRUCTION

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 REQUIREMENTS INCLUDED

A. Scope
B. Applicable Regulations
C. Notification
D. Implementation
F. Protection of Water Resources
G. Burning
H. Dust and Mud Control

1.3 SCOPE

A. The work covered by this section consists of furnishing all labor, material and equipment and performing all work required for the prevention of environmental pollution during and as the result of construction operations under this contract except for those measures set forth in other Technical Provisions of these specifications.
B. Compliance with the provisions of this section by all Subcontractors shall be the responsibility of the Contractor.

1.4 APPLICABLE REGULATIONS

A. In order to provide for abatement and control of any environmental pollution arising from the construction activities of the Contractor and his subcontractors in the performance of this contract, they shall comply with all applicable Federal, State and local laws, and regulations concerning environmental pollution control and abatement as well as the specific requirements stated elsewhere in the contract specifications.

1.5 NOTIFICATION

A. The Architect will notify the Contractor in writing of any noncompliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Architect may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost on account of any such stop orders shall be made the subject of a claim for extension of time or for extra costs or damages by the Contractor unless it was later determined that the Contractor was in compliance.

1.6 PROTECTION OF WATER RESOURCES

A. At all times of the year, special measures shall be taken to prevent chemicals, fuels, oils, grease, bituminous materials, waste washings, herbicides and insecticides, and cement and surface drainage from entering public waters.
B. If any waste material is dumped in unauthorized areas the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area.

If necessary, contaminated ground shall be excavated, disposed of as directed by the Architect, refilled with clean material and compacted all at the expense of the Contractor.

1.7 BURNING

A. Burning will not be permitted.

1.8 DUST AND MUD CONTROL

A. The Contractor shall at all times provide adequate dust control measures. He shall accomplish this, without interference to the public/tenants.

END OF SECTION 015719

SECTION 016100 – MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 RELATED REQUIREMENTS

A. General Standards

B. Products

C. Sustainability

D. Transportation and Handling

E. Storage and Protection

1.3 GENERAL STANDARDS APPLICABLE TO ALL SPECIFICATION SECTIONS

A. These provisions, standards, and tolerances shall apply to all work under this Contract. Where stricter standards and tolerances are specified elsewhere in these Specifications or in references specified in these Specifications, they shall take precedence over these standards and tolerances.

B. Build and install parts of the Work level, plumb, square, and in correct position unless specifically shown or specified otherwise.

1. No part shall be out of plumb, level, square, or correct position so much as to impair the proper functioning of the part or the Work as judged by the Architect.

2. No part shall be out of plumb, level, square, or correct position so much as to impair the aesthetic effect of the part or the Work as judged by the Architect.

C. Make joints tight and neat. Provide uniform joints in exposed work. Arrange joints to achieve the best visual effect. Refer choices of questionable visual effect to the Architect.

D. Under potentially damp conditions, provide galvanic insulation between different metals which are not adjacent on the galvanic scale.

E. Manufacturers, subcontractors, and workmen shall be experienced and skillful in performing the work assigned to them.

F. All paint used on all products shall conform to ANSI Z66.1, Specifications for Paints and Coatings Accessible to Children to Minimize Dry Film Toxicity.

G. The Drawings do not attempt to show every item of existing work to be demolished and every item of repair required to existing surfaces. Perform work required to remove existing materials which are not to be saved and to restore existing surfaces to condition equivalent to new as judged by Architect. If possible, repairs shall be indistinguishable from adjacent sound surfaces. Where it is impossible to achieve repairs which are indistinguishable from adjacent sound surfaces to remain, notify Architect, and proceed

according to his instructions.

1.4 PRODUCTS

A. Products include material, equipment and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.

D. In the case of an inconsistency between Drawings and the Specifications, or within either document which is not clarified by addendum, the product of greater quality or greater quantity of work shall be provided in accordance with the Designer's interpretation.

E. Provide environmentally preferable products to the greatest extent possible. To the greatest extent possible, provide products and materials that have a lesser or reduced effect on the environment considering raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and/or disposal of the product.

1.5 TRANSPORTATION AND HANDLING

A. Arrange deliveries of materials in accordance with construction schedules in order to avoid delay in, conflict with, or the impeding of the progress of the Work and conditions at the site.

B. Deliveries shall be made during regular work hours, unless approved otherwise by the Owner.

C. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

1.6 STORAGE AND PROTECTION

A. Store materials in accordance with manufacturer's instructions, with seals and labels accessible for inspection

B. Contractor shall be responsible for work and equipment until fully inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material or damaging water.

C. Materials stored on the Site shall be neatly arranged and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work or with the operations of the Owner.

D. Storage: Maintain temperature and humidity within the ranges required by manufacturer's instructions.

NOTE: If approval is given to store materials in any part of the building area, they shall be so stored as to cause no overloading of the existing structure.

E. Deliver materials in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

1. Store products subject to damage by the elements in weathertight enclosures
2. Store fabricated products above the ground, on blocking or skids; prevent soiling or staining. Cover products subject to damage or deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
3. Store loose granular materials in a well drained area on solid surfaces to prevent mixing with foreign matter. Locate away from drainage or areas subject to flooding or storm washes.

NOTE: Should it become necessary during the course of the Work to move materials or equipment stored on the Site, the Contractor, at the direction of the Owner's Representative, shall move such material or equipment at no additional cost to the Owner.

F. If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the Work or interfering with the work to be done by any other contractor employed on the Work, the Contractor shall remove and restack such materials at no additional cost to the Owner.

G. Protection After Installation.

1. Provide adequate coverings to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction.
2. Remove when no longer needed.

END OF SECTION

SECTION 017123 – FIELD ENGINEERING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specified field engineering services required for the Project, including but not limited to

1. Structural, or other professional engineering services specified, or required to execute Contractor's construction methods

1.2 REQUIREMENTS INCLUDED

A. Related Requirements

B. Qualifications of Engineer

C. Submittals

1.3 RELATED REQUIREMENTS

A. Examine Contract Documents for requirements that affect work on this Section

1.4 QUALIFICATIONS OF ENGINEER

A. Registered professional engineer of the discipline required for the specific service on the Project, licensed in the state in which the Project is located.

1.5 SUBMITTALS

A. Submit name and address of professional engineer to Architect.

B. On request of Architect, submit documentation to verify accuracy of field engineering work not limited to scaffolding, overhead protection, bridges and other methods requiring OSHA approval.

C. Submit certificate signed by registered engineer certifying that elevation and locations of improvements are in conformance, or non-conformance, with Contract Documents.

END OF SECTION 017123

SECTION 017419 – CONSTRUCTION WASTE MANAGEMENT

1.1 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2 DESCRIPTION OF WORK

A. This Section specifies requirements for a complete program for implementation of waste management controls and systems for the duration of the Work.

1.3 INTENT

A. The Owner has established that this Project shall generate the least amount of waste practical and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

B. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized to the greatest extent practical.

With regard to these goals the Contractor shall develop, for Owner's Representative's review and Architect's review, a Waste Management Plan for this Project

Each Sub/Specialty Contractor shall be responsible for segregating their own waste into different dumpsters as directed by the Contractor

The Contractor shall be responsible for ensuring that debris will be disposed of at appropriately designated licensed solid waste disposal facilities, as defined by governing laws of the jurisdiction of the Work

1.4 WASTE MANAGEMENT PLAN

A. Waste Management Plan: The Contractor shall provide a plan containing the following:
   1. Analysis of the proposed jobsite waste to be generated, including types and rough quantities
   2. Landfill Options: The name of the landfills where trash and building debris will be disposed of, the applicable landfill tipping fees, and the projected cost of disposing of all Project waste in the landfills
   3. Landfill Certification: Contractor's statement of verification that landfills proposed for use are licensed for types of waste to be deposited and have sufficient capacity to receive waste from this project
   4. Alternatives to Land filling: A list of each material proposed to be salvaged or recycled during the course of the Project. Include the following and any additional items proposed:
      - Cardboard
      - Clean dimensional wood
      - Beverage containers
      - Concrete
      - Bricks and masonry

- Gypsum boards
- Acoustical ceiling material (grid separate)
- Metals from framing, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze

5. Meetings: A description of the regular meetings to be held to address waste management
6. Materials Handling Procedures: A description of the means by which any waste materials identified above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities
7. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.

Part 2 -PRODUCTS -NOT USED

Part 3 –EXECUTION

3.1 RECYCLING

A. Metal, including but not limited to aluminum stairs, structural beams and sections, and reinforcing steel shall be recycled.

B. Wood that is not painted and does not contain preservatives (i.e. creosote, arsenic, and chromium-containing preservatives) shall be segregated and recycled.

3.1 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. All sorting will be done “off site” by a recognized construction and demolition processing facility who will be responsible for provision of all documentation as to where loads were processed and the recycling rate achieved.

B. Hazardous Wastes: Any unforeseen hazardous wastes shall be separated, stored, and disposed of according to local regulations.

END OF SECTION 017419

SECTION 017700 – PROJECT CLOSE OUT

1.01 GENERAL

A. All Contractors, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.02 REQUIREMENTS INCLUDED

A. Final Cleanup
B. Required Close Out Documentation
C. Project Close Out Inspections

1.03 FINAL CLEANUP

A. The Contractor shall leave the work ready for use and occupancy without the need of further cleaning of any kind.
B. The Contractor shall remove all tools, appliances, project signs, material and equipment from the phased areas as soon as possible upon completion of the work.
C. The work is to be turned over to the Owner in new condition, in proper repair and in perfect adjustment.

1.04 REQUIRED CLOSE OUT DOCUMENTATION

A. Prior to final payment, ***and as part of the final requisition,*** the Owner shall receive, in addition to those documents required by the General Conditions, the following:

1. Project record documents as per Section 017719.
2. Coordination drawings as per Section 013114.
3. The Contractor's general guarantee.
4. Specific guarantees of material, equipment and systems installed in the work.
5. A copy of all test data taken in connection with the work.
6. Three (3) copies of all operation and maintenance manuals which shall include:
   a. Sequence of Operation and Control Diagrams, corrected for as-built conditions.
   b. Parts List, including illustrations, assembly drawings and diagrams required for maintenance, predicted life of parts subject to wear, and recommendations for stocking spare parts.
   c. Copies of accepted shop drawings, charts and diagrams.
   d. Names, addresses and telephone numbers of manufacturer’s representative and service company.
   e. Letters from each manufacturer certifying that his equipment was properly installed and is operating in accordance with manufacturer’s intent.
   f. MSDS sheets tabulated and indexed as per specification sections.
   g. Copies of all test reports, including balancing, and with corrections confirmed, must be provided with the contractor’s request for a substantial completion inspection.
   h. An “Underwriter’s Certificate” shall be provided in the O&M manuals to be provided to the Owner.
7. Preventative Maintenance Schedule Sheets.
8. Copies of all Certification of Specifications Compliance as per Section 01 33 00.
9. Record of Manufacturers Material Safety Data Sheets (MSDS).

10. Certified Payroll Records.

1.05 PROJECT CLOSE OUT INSPECTIONS

A. When the Work has reached such a point of completion that the building or buildings, equipment, apparatus or phase of construction or any part thereof required by the Owner for occupancy or use can be so occupied and used for the purpose intended, the Contractor, prior to notification to the Architect, shall make a preliminary inspection of the Work to insure that all the requirements of the Contract have been met and the Work is substantially complete and is acceptable.

Upon such notification, the Owner or the Architect shall make a detailed inspection of the Work to insure that all the requirements of the Contract have been met and that the Work is complete and is acceptable.

B. A copy of the report of the inspection shall be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.

C. When the items appearing on the report of inspection have been completed or corrected, the Contractor shall so advise the Owner and the Architect. After receipt of this notification, the Owner or the Architect shall inform the Contractor of the date and time of final inspection.

A copy of the report of the final inspection containing all remaining contract exceptions, omissions and in completions shall be furnished to the Contractor.

D. After the receipt of notification of completion and all remaining contract exceptions, omissions and in completions from the Contractor, the Owner and the Architect will re-inspect the Work to verify completion of the exception items appearing on the report of final inspection.
Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance or will furnish to the Contractor a copy of the report of the Architect's re-inspection detailing Work that is incomplete or obligations that have not been fulfilled but are required for final acceptance.

END OF SECTION

CONTRACT NO. 21-540
DIVISION 2 – SITE CONSTRUCTION

SECTION 020700 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Information for Bidders, General Clauses and Special Clauses, apply to this Section.

B. Provide all material, labor, equipment and operations required or reasonably implied to complete demolition and removal work or alterations and restoration work in accordance with drawings and specifications herein.

1.2 SUMMARY

A. This Section includes the following:

1. Roofing removal.
2. Parapet coping removal.
3. Other demolition, removal and disposal as shown on the contract drawings.
4. Patching and repairs.

1.3 WORK OF THIS SECTION

Removals:

1. Perform demolition of items as specified and in areas indicated in the drawings.
2. All cutting, patching and repairing in connection with the contract work shall be performed in such a manner that the finished work will be structurally sound and unmarred as though no cutting, patching and repairing had been executed.
3. All other work incidental thereto and reasonably inferable as needed to make the work of this Section complete.

1.3 GENERAL REQUIREMENTS

1 The premises shall be accepted as found at the start of demolition.
2. No construction (e.g. chutes, elevators, etc.) will be permitted on the exterior of the building or structures adjacent thereto unless approved by the Owner.
3. The Contractor shall refer to the applicable Special Clauses, e.g. Cutting and Patching, Protection and Clean-up, and Removal of Debris.

1.5 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify

contents of containers and deliver to Owner's designated storage area-as applicable.

C. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.6 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.7 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract.

B. Proposed dust-control measures.

C. Proposed noise-control measures.

1.8 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.9 PROJECT CONDITIONS

A. Owner will occupy portions of the building immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Storage or sale of removed items or materials on-site will not be permitted.

1.10 SCHEDULING

A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Conduct demolition operations to prevent injury to people and damage to adjacent

buildings and facilities to remain. Ensure safe passage of people around selective demolition area.

1. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.
2. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.

3.2 POLLUTION CONTROLS

A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.

1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.3 PATCHING AND REPAIRS

A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

1. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturer's printed recommendations.

C. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.

D. GC is responsible for coordination with other crafts.

C. DISPOSAL OF DEMOLISHED MATERIALS

D. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

E. Burning: Do not burn demolished materials.

F. Disposal: Transport demolished materials off Owner’s property and legally dispose of them.

3.5 CLEANING

A. Sweep the roof broom clean on completion of selective demolition operation.

END OF SECTION 020700

CONTRACT NO. 21-540
DIVISION 2 – SITE CONSTRUCTION

SECTION 024000 – SITE PROTECTIONS AND EROSION CONTROLS

PART 1 – GENERAL

1.1 SCOPE OF THIS SECTION:

A. Protections for buildings, structures, trees and other elements.

B. Sediment and erosion controls.

1.2 SUBMITTALS:

A. Make submissions in accordance with SECTION 013300.

B. Submit diagrammatic drawings or sketches showing the type and layout of protections and erosion controls proposed.

C. Review layouts in the field with the Inspector.

1.3 QUALIFICATIONS:

A. Subcontractors, superintendents, workers and other persons or entities involved in managing or performing the work shall be qualified and shall not be permitted to perform the work if not so qualified.

B. Submit qualifications of subcontractors, fabricators or suppliers proposed for the work for approval prior to employment.

1.4 SCOPE OF PROTECTIONS:

A. Establish a system of positive protections including stakes, guards, warning strips and other devices to protect buildings, structures and other elements from damage by work operations.

PART 2 - PRODUCTS

2.1 SEDIMENT AND EROSION CONTROL MATERIALS:

A. Materials shall include:

1. Mulch: hay, straw, or wood fiber.

2. Erosion control fencing: shall be 2'-0" high polyethylene sheet film attached to wood stakes set in the ground at 4'-0" on center.

3. Stone: Stone filling shall meet the requirements of NYSDOT Spec 620-2.02. Bedding material shall meet the requirements of NYSDOT Spec 620-2.05.

4. Haybale/strawbale: tightly bound bales shall meet the requirements of NYSDOT Spec 730-18 and 730-19.

5. Geotextile: geotextile appropriate for the use and conforming to NYSDOT 207-2.
6. Silt fence: woven geotextile fastened to wood or metal posts, 48" long, with positive wire fasteners.

2.2 PROTECTIONS:

Protections shall be fabricated from heavy timber, lumber or plywood with appropriate fasteners and straps for secure placement.

PART 3 - EXECUTION

3.1 SEDIMENT AND EROSION CONTROLS:

A. Layout all proposed sediment and erosion controls and review with the Inspector at the job site.

B. Coordinate sediment and erosion controls with the work of other trades so that other work will not be impeded by the locations of the controls.

C. Install sediment and erosion controls in a manner to maintain them securely in place during the course of the project, until backfill and landscaping have been completed.

D. Install additional sediment and erosion controls during the course of the work to control unanticipated conditions.

E. Maintain and repair sediment and erosion controls during the course of the work.

3.2 PROTECTIONS:

A. Install general protections as follows:

Install protections with rigid staking and durable, solid connections so they can remain in place for the duration of the project.

Repair or reinstall protections that become damaged or displaced during the course of the work.

Install additional protections during the course of the work if required.

B. Install tree protections as follows:

Install tree trunk protections consisting of planks, 8' high, set vertically on the tree trunk and held in place by wire or bailing tape.

Install snow fence in a circle around each tree in the construction area, approximately 20' in diameter, cut back on the construction side as required.

Prohibit the storage of materials or equipment within the fence line at any time.

C. Install beach protections as follows:

1. Provide specific barricades and protections to eliminate contamination of waterfront area and river from construction debris, erosion run-off, vehicle and pedestrian damage. Waterfront area shall be maintained as protected from all construction and passage activity.

2. Waterfront protections shall be embedded sufficiently into the ground to contain all construction activities, materials and debris from undermining the protective barrier and causing contamination of the waterfront and river.

3. Review all waterfront protections with County representative and parks Department personnel prior to establishing protections.

END OF SECTION 024000

CONTRACT NO. 21-540

DIVISION 6 – WOOD AND PLASTIC

SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Wood blocking and nailers.

B. Related Requirements:

   1. Division 07 Section "THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING" for nonstructural carpentry items not exposed to view.

1.3 DEFINITIONS

A. Exposed Framing: Framing not concealed by other construction.

B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

C. Timber: Lumber of 5 inches nominal or greater in least dimension.

D. Lumber grading agencies, and the abbreviations used to reference them, include the following:

   1. NeLMA: Northeastern Lumber Manufacturers' Association.
   2. NLGA: National Lumber Grades Authority.
   3. RIS: Redwood Inspection Service.
   4. SPIB: The Southern Pine Inspection Bureau.
   5. WCLIB: West Coast Lumber Inspection Bureau.
   6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. LEED Submittals:

1. Certificates for Credit MR 6 or Credit MR 7: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification requirements. Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.
2. Product Data for Credit IEQ 4.1: For adhesives, documentation including printed statement of VOC content.
3. Product Data for Credit IEQ 4.4: For composite wood products, documentation indicating that product contains no urea formaldehyde.
4. Laboratory Test Reports for Credit IEQ 4: For adhesives and composite-wood products, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Power-driven fasteners.
3. Powder-actuated fasteners.
4. Expansion anchors.
5. Metal framing anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having

jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship." for the following:

1. Dimension lumber framing.
2. Miscellaneous lumber.

B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.

C. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2, Use Category UC3b for exterior construction not in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Application: Treat items indicated on Drawings, and the following:

1. Wood nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2.3 DIMENSION LUMBER FRAMING

A. Rafters and Other Framing: Construction or No. 2 or Construction, Stud, or No. 3 grade.

1. Species:

a. Hem-fir (north); NLGA.
b. Southern pine; SPIB.
c. Douglas fir-larch; WCLIB or WWPA.
d. Mixed southern pine; SPIB.
e. Spruce-pine-fir; NLGA.
f. Douglas fir-south; WWPA.
g. Hem-fir; WCLIB or WWPA.
h. Douglas fir-larch (north); NLGA.
i. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

B. For items of dimension lumber size, provide Construction or No. 2 Standard, Stud, or No. 3 grade lumber of any species.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for

accurate fit. Locate nailers, blocking and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

D. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

G. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 075423 – THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. It is the intent of this specification to install a long-term, quality waterproofing system that meets or exceeds all current NRCA guidelines as stated in the most recent edition of the NRCA Roofing and Waterproofing Manual. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. This Section includes the following:

1. Removal and legal disposal of all existing roofing, insulation and flashings.
2. Induction welded TPO membrane roofing system
3. Cover board.
4. Roof insulation
5. Perimeter metal coping
6. Expansion joints
7. Associated flashings

1.2 RELATED SECTIONS

A. Related Sections include the following:

1. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, cants, curbs, and blocking.
2. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings and flashings.
3. Division 07 Section “Aluminum Copings”.

1.3 DEFINITIONS

A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms in this Section:

1. ASTM D 1079 “Standard Terminology Relating to Roofing and Waterproofing.”
2. Glossary of NRCA’s “The NRCA Roofing and Waterproofing Manual.”
3. Roof Consultants Institute “Glossary of Building Envelope Terms.”

B. Sheet Metal Terminology and Techniques: SMACNA “Architectural Sheet Metal Manual.”

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

B. Installed roofing membrane system shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.

C. Provide a roofing system that is identical to Johns Manville Roofing Systems TPO Membrane utilizing JM TPO RhinoPlates, Specification ST8RR, and systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.

D. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

E. Installer shall comply with current code requirements based on authority having jurisdiction.

F. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7.

1. Wind speed: 110 mph

G. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A ; ASTM E 108, for application and roof slopes indicated.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated. When a particular make or trade name is specified, it is indicative the standard required. The general requirements and the roof membrane performance standards are the requirements set forth by Westchester DPW&T to provide an equal bidding format for all bidding contractors.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work including:

1. Base flashings, cants, and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening and adhesive patterns.

C. Verification Samples: Provide the following:

1. Manufacturer’s standard sample size of TPO roofing membrane sheet & flashing backer sheet.
2. Manufacturer’s standard sample size of cover board.
3. Manufacturer’s standard sample size of roof insulation.
4. Manufacturer’s standard sample size of walkway pad or cap sheet walkway.
5. Manufacturer’s standard sample size of roof edging and parapet products.
6. Fasteners or each type, length and finish used for complete roofing installation.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Maintenance Data: Refer to Johns Manville’s latest published documents on www.JM.com.

F. Guarantees: Provide manufacturer’s current guarantee specimen.

G. Prior to beginning the work of this section, roofing sub-contractor shall provide a copy of the final System Assembly Letter issued by Johns Manville Roofing Systems indicating that the products and system to be installed shall be eligible to receive the specified manufacturer's guarantee when installed by a certified JM contractor in accordance with our application requirements, inspected and approved by a JM Technical Representative.

H. Prior to roofing system installation, roofing sub-contractor shall provide a copy of the Guarantee Application Confirmation document issued by Johns Manville Roofing Systems indicating that the project has been reviewed for eligibility to receive the specified guarantee and registered.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing FMG approval for roofing system identical to that used for this Project.

C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 329.

D. Test Reports:

1. Roof drain and leader test or submit plumbers' verification.
2. Core cut (if requested).
3. Roof deck fastener pullout test.

E. Source Limitations: Obtain all components from the single source roofing manufacturer guaranteeing the roofing system. All products used in the system shall be labeled by the single source roofing manufacturer issuing the guarantee.

F. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site. Comply with requirements for pre-installation conferences in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and other installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Require that all complimentary trades be present at conference. Including, but not limited to; electrical, plumbing, HVAC, and framing contractors.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

G. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.
10. Require all trades listed in Preliminary Roofing Conference to be present.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 GUARANTEE

A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.

1. Single-Source special guarantee includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, cover board, substrate board, vapor retarder, walkway products, manufacturer’s expansion joints, manufacturer’s edge metal products, and other single-source components of roofing system marketed by the manufacturer.
2. Guarantee Period: 30 years from date of Substantial Completion.
3. Contractor is required to list Westchester DPW&T as the Specifier/Consultant of record in the appropriate fields (“Specifier Account”) when applying for the manufacturer’s warranty.

B. Installer’s Guarantee: Submit roofing Installer's guarantee, including all components of roofing system for the following guarantee period:

1. Guarantee Period: Two years from date of Substantial Completion.

C. Existing Guarantees: Guarantees on existing building elements should not be affected by scope of work.

1. Installer is responsible for coordinating with building owner’s representative to verify compliance.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC POLYOLEFIN ROOFING MEMBRANE - TPO

A. Basis of Design: Johns Manville Roofing Systems TPO Membrane utilizing JM TPO RhinoPlates, Specification ST8RR, or a pre-approved equal.

B. Fabric-Reinforced Thermoplastic Polyolefin Sheet: ASTM D 6878, uniform, flexible sheet formed from a thermoplastic polyolefin, internally fabric or scrim reinforced. Basis of Design: JM TPO

1. Membrane Thickness: 80 mils (2.03 mm), nominal
2. Exposed Face Color: White

2.2 AUXILIARY ROOFING MATERIALS – SINGLE PLY

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's internally reinforced or scrim reinforced, smooth backed membrane with same thickness and color as sheet membrane. Basis of Design: JM TPO

C. Bonding Adhesive: Manufacturer's standard solvent water-based bonding adhesive for membrane, and solvent water-based bonding adhesive for base flashings. Basis of Design: JM LVOC Membrane Adhesive (TPO & EPDM)

D. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, with anchors. Basis of Design: JM Termination Systems

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer. Basis of Design: High Load Fasteners and Plates

F. Induction Welding Plate: A round specially coated Galvalume® plate with a recessed center and raised flat bonding surface specifically designed for induction welding application. Basis of Design: JM TPO RhinoPlates

G. Miscellaneous Accessories: Provide pourable sealers, primers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, cover strips, and other accessories required for full installation. Basis of Design: JM TPO Pourable Sealer A & B, JM TPO Pipe Boots, JM TPO Universal Corners, JM TPO Edge Sealant, JM TPO T-Joint Patch, JM TPO Membrane Cleaner, JM TPO Membrane Primer, JM TPO Membrane Primer (Low VOC), JM TPO Sealing Mastic, JM TPO Cover Tape, JM TPO Detail Membrane, JM TPO Peel & Stick 10" RPS, JM TPO Peel & Stick 6" RTS, JM TPO-Coated Metal, JM TPO Curb Flashing and JM Single Ply Caulk

2.3 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacturer. Basis of Design: JM TPO Walkpad JM TPO Safety Walkpad

2.4 COVER BOARD

A. Gypsum Board: ASTM C 1177, coated glass-mat facer, water-resistant gypsum substrate for mechanically attached roof applications, 1/2 inch (12 mm) thick. Basis of Design: JM DEXcell Glass Mat Roof Board

2.5 ROOF INSULATION (UPPER ROOF)

A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1 , Grade 2 (20 psi) , Basis of Design: ENRGY 3

1. Provide insulation package with minimum R Value: 30 minimum required by New York State Energy Code..
2. Provide insulation package in multiple layers.
3. Minimum Long-Term Thermal Resistance (LTTR): 5.7 per inch.

    a. Determined in accordance with CAN/ULC S770 at 75ºF (24ºC)

2.6 TAPERED INSULATION (LOWER FRONT OFFICE AREA)

A. Tapered Insulation: ASTM C 1289, Type II, Class 1, Grade 2 (20 psi), provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48), unless otherwise indicated. Basis of Design: Tapered ENRGY 3

2.7 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated. Basis of Design: Diamondback Pre-Cut Cricket Diamondback Pre-Cut Miter Tapered Fesco Edge Strip

C. Wood Nailer Strips: Comply with requirements in Division 06 Section "Miscellaneous Rough Carpentry."

2.8 EDGE METAL COMPONENTS

A. Expansion Joints: Provide factory fabricated weatherproof, exterior covers for expansion joint openings consisting of flexible rubber membrane, supported by a closed

cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to the bellows by a bifurcation process. Provide product from single-source roofing system supplier that is included in the No Dollar Limit guarantee. Basis of Design: Expand-O-Flash

B. Coping System: Manufacturer's factory fabricated coping consisting of a base piece and a snap-on cap. Provide product from single-source roofing system supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Lock Coping

C. Fascia System: Manufacturer's factory fabricated fascia consisting of a base piece and a snap-on cover. Provide product from single-source roofing system supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Tite Fascia Presto-Tite Edge One Fascia

D. Metal Edge System: Manufacturer's factory fabricated metal edge system used to terminate the roof at the perimeter of the structure. Provide product from single-source roofing system supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Weld Drip Edge JM TPO-Coated Metal

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.

1. General:

   a. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
   b. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

2. Steel Decks:

   a. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."

3. Ensure general rigidity and proper slope for drainage.
4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units more than 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

B. Unacceptable panels should be brought to the attention of the General Contractor and Project Owner's Representative and shall be corrected prior to installation of roofing system.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.

C. If applicable, prime surface of deck with asphalt primer at a rate recommended by roofing manufacturer and allow primer to dry.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RE-ROOF PREPARATION

A. Remove all roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, etc.

1. Remove an area no larger than can be re-roofed in one day.

B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.

C. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations.

1. Install decking to match existing as directed by Owner's Representative.

D. Raise (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:

1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
2. Secure of flashing and install new metal counterflashing prior to re-installation of unit.
3. Perimeter nailers shall be elevated to match elevation of new roof insulation.

E. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSULATION & COVER BOARD INSTALLATION

A. Coordinate installation of roof system components so insulation and cover board are not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.

C. Install tapered insulation under area of roofing to conform to slopes indicated on lower front office roof area only.

D. Install insulation boards with long joints in a continuous straight line. Joints should be staggered between rows, abutting edges and ends per manufacturer’s written instructions. Fill gaps exceeding 1/4 inch (6 mm) with like material.

E. Install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.

G. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

H. Loose Laid thermal Insulation with Top cover board Layer Mechanically Fastened: Loose lay thermal insulation with staggered joints and secure top layer of cover board insulation to deck using mechanical fasteners designed and sized for fastening specified board-type to deck type.

1. Fasten thermal insulation and cover board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturer's written instructions but not less than the following: See technical system assembly letter.

a. Field of the roof 8 fasteners per 4’x8’ board
b. Perimeter of the roof 15 fasteners per 4’x8’ board
c. Corners of the roof 20 fasteners per 4’x8’ board

I. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.

B. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

C. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.

1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
3. Remove and discard temporary seals before beginning work on adjoining roofing.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 INDUCTION WELDED ROOFING MEMBRANE INSTALLATION

A. Install roofing membrane over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Accurately align roofing membranes and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

C. Always install membrane laps perpendicular to the steel deck flutes. “Picture Frame” installation method is not permitted.

D. Apply roofing membrane with side laps shingled with roof slope, where possible.

E. Seams: Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roofing membrane.
2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.

    a. Remove and repair any unsatisfactory sections before proceeding with Work.

3. Repair tears, voids, and lapped seams in roofing membrane that do not meet requirements.

F. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

G. Induction Welding Installation:

1. Perform calibration and set-up as detailed by the Induction Welder Owner's Manual
2. Center the Induction Welder over the first plate in pattern and activate the weld.

    a. Induction Welder shall be centered over the plate to create a 100% bond.
    b. If an error occurs during activation, refer to the induction welder owner's manual for corrective action.

3. Prior to every use, clean face of Heat Sink Magnet.
4. Place Heat Sink Magnet over the welded plate.

    a. Keep Heat Sink Magnet in place at least 45 seconds while the assembly cools.

5. Repeat process for each plate.

H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates per membrane roofing system manufacturer's written instructions.

B. Apply solvent-based bonding adhesive at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners per manufacturer's installation instructions.

D. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive. Weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.8 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld and adhere walkway products to substrate according to roofing system manufacturer's written instructions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.9 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to DPW architect.

1. Notify DPW Architect 48 hours in advance of date and time of inspection.

B. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTION AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075423

CONTRACT NO. 21-540

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 076200 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Formed roof-drainage sheet metal fabrications.

B. Related Sections include the following:
   1. Division 07 Section "THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING" for installing sheet metal flashing and trim integral with membrane roofing.
   2. Division 07 Section "Joint Sealants".
   3. Division 06 Section "Rough Carpentry" for treated wood nailer plates on top of parapets.

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Fabricate and install roof edge flashing capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49:
   1. Wind Zone 2: For velocity pressures of 31 to 45 lbf/sq. ft. (1.48 to 2.15 kPa): 90-lbf/sq. ft. (4.31-kPa) perimeter uplift force, 120-lbf/sq. ft. (5.74-kPa) corner uplift force, and 45-lbf/sq. ft. (2.15-kPa) outward force.

C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

1.5 QUALITY ASSURANCE.

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
2. Review methods and procedures related to sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.7 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2.2 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.

2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
3. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

C. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.

G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.3 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Obtain field measurements for accurate fit before shop fabrication.
3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

E. Expansion Provisions: Install splice plates at expansion joints as noted on drawing details.

F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

G. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.

H. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

I. Seams for Steel: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints where necessary for strength.

J. Do not use graphite pencils to mark metal surfaces.

2.4 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Downspouts: Fabricate rectangular downspouts to dimensions indicated, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.
   1. Fabricate from the following materials:
      a. Steel: 24 gage with KYNAR 500 finish. Color noted on drawing detail.

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

B. Through Wall Scupper and Conductor Box: Fabricate through wall scupper and conductor box with flanged back and stiffened top edge and of dimensions and shape required, complete with outlet tubes. Fabricate from the following materials:
   1. Steel: 24 gage with KYNAR 500 finish. Color noted on drawing detail.

   2. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Presto-Lock Thru-Wall Scupper flush collector box version by Johns Manville.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
5. Install sealant tape where indicated.
6. Torch cutting of sheet metal flashing and trim is not permitted.
7. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of uncoated-aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing. Space expansion joints with splice plates at a maximum of 8 feet as noted on drawing details with no joints allowed within 24 inches of corner or intersection.

D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

E. Seal joints as shown and as required for watertight construction.
1. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 ROOF-DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof-drainage items to produce complete roof-drainage system according to cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

B. Downspouts: Join sections with telescoping joints.

1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers as noted on drawing.
2. Provide elbows as indicated on drawing at base of downspout to direct water away from building.

C. Conductor Box: Anchor securely to wall as indicated on drawing.

3.4 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 076200

CONTRACT NO. 21-540

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 077113 – ALUMINUM COPINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Aluminum copings and related construction.

B. Related Work Specified Elsewhere
   1. Division 07 Section "THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING" for installing sheet metal flashing and trim integral with membrane roofing.
   2. Division 07 Section "Joint Sealants".
   3. Division 06 Section "Rough Carpentry" for treated wood nailer plates on top of parapets.

1.3 SUBMITTALS

A. Product Data: Each type of product specified. Submit manufacturer's detailed technical product data, installation instructions and recommendations, dimensions of individual components, profiles, and finishes

B. Shop Drawings: Show fabrication and installation of parapet copings including fully dimensioned roof plans, expansion joint locations, sections and details of components and other related trims.

C. Finish & Color Selection: Furnish manufacturer's technical data for specified finish and color chart showing full range of colors available.

1.4 QUALITY ASSURANCE

A. Where pre-engineered manufactured products are specified, other field fabricated or shop/field fabricated substitutions will not be accepted. However, where shop/field fabrications are indicated pre-engineered systems will be considered with Architect approval.

B. Obtain all components and related accessories from one single source manufacturer.

C. Follow manufacturer's printed instructions for installing parapet copings. If copings join a roof system, then follow primary roofing manufacturer's printed instructions for installing associated roof material for flashing parapets and coping.

1.5 DELIVERY, STORAGE & HANDLING

A. All products delivered shall be stored in a clean dry location prior to installation.

B. Products furnished with strippable protective masking shall not be exposed to direct sunlight for more than 30 minutes without removing masking.

C. Do not install finished materials with scars or abrasions.

1.6 PROJECT CONDITIONS

A. Coordinate work of this Section with adjoining work for proper sequencing to ensure protection from inclement weather and to protect materials and their finish against damage.

B. Do not install copings during inclement weather. When installing in cold climates, warm adhesives, caulks, and primers to at least 50 degrees Fahrenheit prior to application.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Johns Manville Roofing Systems Presto Lock Coping System, or a pre-approved equal.

2.3 MATERIALS & FABRICATION

A. Parapet copings shall be manufactured from 0.050" mill finished aluminum in 12'-0" lengths. Coping to have be formed with a ½” wash slope to divert water to roof side of parapet

A. Anchor clip base 12” wide, 20 gauge (0.91 mm) base; concealed splice plate 8” aluminum with finish to match cover

B. Compression cleats shall be manufactured from 16 gauge galvanized steel, 12” widths with factory mounted stainless steel spring clips.

2.4 ACCESSORIES

A. Mitered Corners: Provide factory mitered corners. Coping profiles shall be precision saw cut with a continuous welded seam to produce a watertight joint.

B. Sculptured End Caps: Provide factory mitered end caps for copings. Coping profiles shall be precision saw cut with a continuous weld to produce a watertight joint.

2.5 FINISHES

A. General: Apply coatings to exposed aluminum components after fabrication for maximum coating performance and to prevent crazing, abrasion, and damage to finished surfaces.

B. Pretreatment: Aluminum components shall be pretreated with solutions to remove organic and inorganic surface soils, remove residual oxides, followed by a chrome phosphate conversion coating to which organic coatings will firmly adhere.

C. Coating Type: High Performance Coating. Kynar 500 meeting AAMA 2605 specification. **Color to match existing wall metal penal system.**

PART 3 EXECUTION

3.1 EXAMINATION

A. The installer must examine substrates and conditions under which copings will be installed. All wood plates shall be installed true, straight, and free of splits, cracks, or other irregularities. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. General: The parapet coping system shall be installed in strict accordance with manufacturer's printed instructions. Deviations from the instructions are not allowed.

B. Fastening: Coping shall be snapped onto compression cleats spaced according to manufacturer’s instructions. A cleat shall be located at the coping’s splice joint and in the middle of each coping section. Cleat shall be fastened with (4) #12 x 1 ½” stainless steel wood screw.

C. Install coping concealed splice plates at all coping joints. Splice plate shall be sealed with a non-hardening, low modulus, sealant as recommended by coping manufacturer.

END OF SECTION 07 71 13

SECTION 079200 – SEALANTS

PART 1 - GENERAL

1.1 WORK OF THIS SECTION:

A. General sealant systems.

1.2 RELATED SECTIONS:

A. Sealants as part of other systems - see various SECTIONS.

1.3 SUBMITTALS:

A. Make submittals in accordance with SECTION 013300.

B. Submit product data describing assembly proposed at each location.

C. Submit color samples for each sealant.

1.4 QUALIFICATIONS:

A. Subcontractors, superintendents, workers and other persons or entities involved in managing or performing the work shall be qualified as specified and shall not be permitted to perform the work if not so qualified.

B. Submit qualifications of subcontractors, fabricators or suppliers proposed for the work for approval prior to employment.

1.5 QUALITY ASSURANCE:

A. In general, all sealant materials shall be products of the single manufacturer selected for sealant systems or shall be products specifically recommended by that manufacturer for the sealant assembly.

1.6 TEMPERATURE AND WEATHER:

A. Surfaces to receive sealants shall be dry and sealants shall not be installed until thirty-six hours minimum following a rainfall.

B. Do not apply sealants when the air temperature or the temperature of the surface to be sealed is less than 50 degrees F. or greater than 85 degrees F.

PART 2 - PRODUCTS

2.1 SYSTEM MANUFACTURERS:

A. The sealant systems manufacturer for specified products is Sonneborn Building Products, BASF Corp. Other acceptable manufacturers include Pecora, Tremco and Bostik..

2.2 SEALANTS:

A. In general, use only paintable sealants on the project. Sealants shall be one component urethane sealants. Colors shall be selected to suit specific adjacent materials and applications.

B. Use backer rods and bond breakers at weathertight joints. Follow good sealant installation practice. Use masking tape and finish sealant joints smooth and uniform.

C. Do not use silicone or other non-paintable sealants where painting is required or without prior approval.

2.3 SEALANT PRODUCTS:

A. For Sealants: Sonneborn 'Sonolastic NP 1' complying with Federal Specification TT-S-00231C, February 2, 1970, Type II, Class A: ASTM C-920, Type S, Grade NS, Class 25, use NT, M and A.

B. Primers for NP 1: Sonneborn #733 primer.

C. Solvents for cleaning surfaces: Toluene or Xylene.

D. Solvent for drying wet surfaces: Methyl Ethyl Ketone.

E. Backer Rod: Sonneborn 'Sonofoam backer-rod', in correct size for joint to be sealed.

F. Bond breaker tape: 3M tape #470 or #481.

PART 3 - EXECUTION

3.1 COORDINATION WITH OTHER WORK:

A. Coordinate sealant installation with other work so that each portion of work is performed in the proper sequence, with minimum possibility of damage or disturbance to other work and so that sealant work can be completed as soon as possible after the sealant joint is ready to

be finished.

3.2 PREPARING SURFACES AND JOINTS:

A. Surfaces to receive sealants shall be clean and dry.

B. Clean concrete and masonry surfaces with wire brush or other mechanical means to remove laitence and expose sound concrete.

C. Clean all aluminum surfaces with solvent cleaner.

D. Clean all surfaces which may be damp with Methyl Ethyl Keytone to remove residual moisture.

E. Prime all concrete and masonry surfaces to receive sealant unless specifically permitted to omit priming; apply primers neatly, masking if necessary, so that primers cover only the area in contact with the sealant, without overruns or ragged edges.

F. Joint backing shall be used to control the depth of the joint to recommended thicknesses; for deep joints install back-up rod; for shallow joints and 90 degree angle joints, install bond-breaker tape.

3.3 PREPARING DEEP SEALANT JOINTS:

A. Prepare and prime surfaces.

B. Install back-up rod so that depth of sealant joint will be as follows:

1. Equal or less than the width of the joint for joints from 1/4" to 2" wide.

2. 2" to 5/8" maximum for joints wider than 2".

C. The minimum joint width shall be 1/4".

3.4 PREPARING SHALLOW SEALANT JOINTS:

A. Where joints cannot contain the foam rod or where the joint will be shallower than specified, install back-up tape to form a bond break with the back surfaces of the joints.

B. At 90 degree angle joints install back-up tape on the inside corner of the joint.

C. Back-up tape shall be carefully sized and placed to allow a full bond of the sealant with joint faces at the edges.

3.5 INSTALLING GENERAL SEALANTS:

A. Prepare, mix and install general sealants using the tools and techniques specified by the manufacturer.

B. Mask joints to prevent overruns.

C. Place sealants to provide a full, secure bond with the surfaces without air bubbles, voids, excessive overlap or other faults so that the finished sealant joint will be neat and uniform.

D. Tool the finished sealant joint to a smooth, slightly concave configuration. Use liquid soap lubricant on tool. Strip masking.

E. Finished joint shall be smooth and regular. Redo sealant joints that are sloppy, sagging or otherwise defective.

F. At extended pipe railings, Bed pipe splices and pipe joints in sealants; clean off surplus.

G. At relocated pipe railings, bed mounting plates in sealant and seal old anchor holes.

3.6 CURING:

A. Prepare general sealant work at times which will minimize the risk of damage to new sealants.

B. Protect new sealant joints from surface damage from tools or fingers until fully cured.

C. Replace sealant joints which are damaged before fully cured.

END OF SECTION 079200