SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:

B.

1. Work covered by Contract Documents.
2. Contractor use of premises.
3. Coordination with occupants.
4. Work restrictions.
5. Specification and drawing conventions.

C. Related Section:

1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Health Department Building – Roof Replacement

1. Project Location: 355 White Plains Road, Trumbull, Connecticut.

B. Owner: Town of Trumbull, 5688 Main Street, Trumbull, Connecticut.

C. Architect: Antinozzi Associates, P.C.

D. The Work consists of the following:

1. The Work includes complete roof replacement including misc. work as required and as indicated on the drawings and technical specifications.

1.4 CONTRACTOR USE OF PREMISES

A. General: Contractor shall have limited use of Project site for construction operations during construction period. Contractor's use of Project site is limited to the areas where work is taking place at any particular time and to common areas required for access to work areas. All other

areas shall be restricted. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to work areas within elevator lobby and machine room.
2. Limits: Limit site disturbance. All areas disturb by the general contractors, subcontractors, vendors, deliveries, etc. shall be repaired by the contractor.
3. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, Tenants and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in an acceptable condition throughout construction period. Repair damage caused by construction operations.

C. The Contractor shall conduct his operations under this Contract in such a manner as to allow, at all times during the performance of the work ingress and egress for the tenants and the public with the Owner’s representative to coordinate his work to meet this condition.

D. The Contractor shall provide all necessary safety equipment, material, and personnel to protect the public walks, entrance to buildings and grounds within the work areas of this Contract in order that pedestrians, tenants and the public be protected at all times.

E. Contractor must preserve as much of existing parking as possible for owner use during construction.

F. At all times, the occupants must have safe and full access to all parts of the facility including all the exit stairs and corridors.

1.5 COORDINATION WITH OCCUPANTS

A. Full Occupancy: Owner will occupy site and existing building during entire construction period. Cooperate with Owner and occupants during construction operations to minimize conflicts and facilitate Owner and occupant’s usage. Perform the Work so as not to interfere with Owner's and occupant’s day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify the Owner not less than 72 hours in advance of activities that will affect Owner's and occupant’s operations.

1.6 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, except as otherwise indicated.

1. Weekend Hours: Only with prior approval from the owner.
2. Early Morning Hours: Only with prior approval from owner.
3. Hours for Utility Shutdowns: 48 hours notice and approval from owner.

C. Excessive Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to the occupants with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

D. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor air intakes.

E. Controlled Substances: Use of tobacco products and other controlled substances within the existing building or on the Project site is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on the Project site. Require personnel to utilize identification tags at all times.

G. Employee Screening: Comply with Owner's requirements regarding screening of Contractor personnel working on the Project site.

1. Maintain list of approved screened personnel with Owner's Representative.

I. Security: The Owner will not provide security guard service, watchman or escorts for this project. The employment of a security guard service to guard the contractor’s employees, equipment or materials shall be at the discretion of the Contractor. However, the Contractor shall be solely responsible for theft, vandalism or similar acts at no extra cost to the Owner.

1.7 SCHEDULING OF WORK

A. The elevator modernization work will be carried on while the existing facility is fully occupied.

B. The Contractor shall include in his base bid any overtime work that may be required to perform work that can not be completed during regular working hours. If overtime work is required the contractor must pay the clerk of the works employed by the Owner, Town of Trumbull for all hours when overtime is in force. No overtime work can take place without the clerk of the works present.

C. It is the intent of the Contractor to prosecute the work as rapidly as possible. The final construc tion schedule will be subject to the approval of the Owner and Architect.

1.8 SPECIFICATIONS AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 1 General Requirements: Requirements of Sections in Division 1 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections include the following:

1. Division 1 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, within this specification.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 5 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and

finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Recommended form is AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 (or similar format).

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714 (or similar format). Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.
c. Contractor's Construction Schedule.

2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.

b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Name of subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Change Orders (numbers) that affect value.
g. Dollar value.

1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

6. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

C. Retainage: Owner shall retain 10% of each progress payment until proof of the project's substantial completion. Upon substantial completion, Owner shall retain 5% of the remaining project completion cost. Upon final project completion and closeout, the Owner will then proceed to release the remaining retainage amount and make final payment to the Contractor.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. When an application shows completion of an item, submit final or full waivers.
2. Owner reserves the right to designate which entities involved in the Work must submit waivers.
3. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Products list.
5. Schedule of unit prices.
6. Submittals Schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. Data needed to acquire Owner's insurance.
16. Initial settlement survey and damage report if required.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination
2. Administrative and supervisory personnel.
3. Project meetings.
4. Requests for Interpretation (RFIs).

B. Related Sections include the following:

1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Division 1 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.5 SUBMITTALS

A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

B. Coordination Drawings: Prepare Coordination Drawings where space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Indicate relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Minutes: Architect will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Contractor, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Procedures for processing field decisions and Change Orders.
f. Procedures for RFIs.
g. Procedures for testing and inspecting.
h. Procedures for processing Applications for Payment.
i. Distribution of the Contract Documents.
j. Submittal procedures.
k. Preparation of Record Documents.
l. Use of the premises.
m. Work restrictions.
n. Owner's occupancy requirements.
o. Responsibility for temporary facilities and controls.
p. Construction waste management and recycling.
q. Parking availability.
r. Office, work, and storage areas.
s. Equipment deliveries and priorities.
t. First aid.
u. Security.
v. Progress cleaning.
w. Working hours.

3. Minutes: Architect will record and distribute meeting minutes.

C. Progress Meetings: Conduct progress meetings at regular intervals not exceeding every 2 weeks. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Architect will record and distribute the meeting minutes to the Project team.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.7 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

    a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: CSI Form 13.2A.

1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow five working days for Architect's response for each RFI. RFIs received after 3:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.

c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at each progress meeting. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Special reports.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

C. Special Reports: Submit two copies at time of unusual event.

1.5 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints.
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review time required for review of submittals and resubmittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for completion and startup procedures.
9. Review and finalize list of construction activities to be included in schedule.
10. Review submittal requirements and procedures.
11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than **20** days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work Restrictions: Show the effect of the following items on the schedule:

a. Use of premises restrictions.
b. Work Sequence.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At bi-monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01320

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
2. Division 1 Section "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action. Submittals may be rejected for not complying with requirements.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings may be provided by Architect for Contractor or sub-contractor use in preparing submittals. Fees and disclaimers will be requested.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's and Architect's Consultants receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 working days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 working days for initial review of each submittal.

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 10 working days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

6. Submittals requiring color selections will be reviewed for compliance only. Colors will be released all at the same time once approved by the Client.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect or Architect's Consultant.
3. Include the following information on label for processing and recording action taken:

a. Project name and Architect's Project number.
b. Date.
c. Name and address of Architect.
d. Name and address of Contractor.
e. Name and address of subcontractor.
f. Name and address of supplier.
g. Name of manufacturer.
h. Submittal number or other unique identifier, including revision identifier.

1) Submittal numbers must be coordinated with the Architect's submittal procedures. Standard transmittal and memorandum to Contractors regarding submittal procedure will be provided by Architect, if necessary, upon award of Contract.

i. Number and title of appropriate Specification Section.

j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one original and (2) copies of submittal to Architect in addition to specified number of copies to concurrent reviewer.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect and Architect's Consultants will return submittals, without review, received from sources other than General Contractor or Construction Manager.
1. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification Section number and title.
i. Drawing number and detail references, as appropriate.
j. Transmittal number, numbered consecutively.
k. Submittal and transmittal distribution record.
l. Remarks.
m. Typed name and signature of transmitter.

2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect and Architect's Consultant on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating "No Exceptions Taken" or “Make Corrections Noted” by Architect or Architect’s Consultant.

1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Review, approval and signing of disclaimer form regarding use of drawings.

2. Fees will be requested as deemed appropriate per drawing sheet or file.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Printed performance curves.
h. Operational range diagrams.
i. Mill reports.
j. Standard product operation and maintenance manuals.
k. Compliance with specified referenced standards.
l. Testing by recognized testing agency.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.

4. Submit Product Data before or concurrent with Samples.

5. Number of Copies: Submit four (4) copies of Product Data, unless otherwise indicated. Architect will return three (3) copies.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Construction Documents, unless submittals of Architect's CAD Drawings are otherwise permitted.

1. Preparation: Fully illustrate requirements as shown in the Contract Documents. Include the following information, as applicable:

   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Design calculations.
   j. Compliance with specified standards.
   k. Notation of coordination requirements.
   l. Notation of dimensions established by field measurement.
   m. Relationship to adjoining construction clearly indicated.
   n. Seal and signature of professional engineer if specified.
   o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit four (4) copies of each submittal, where copies are not required for operation and maintenance manuals. Submit five (5) copies where copies are required for operation and maintenance manuals. Architect and Consultant will retain one copy each; remainder will be returned to Contractor.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed. Color photos or digital images are not accepted.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of samples: Submit two (2) full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

6. Paint samples:
    a. General Contractor to provide one 2'x2' color sample for each color painted in finish as specified.
    b. All colors to be submitted at once.
    c. Five (5) day notice required prior to submitting paint samples.
    d. Architect reserves the right to change color.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.

2. Number and name of room or space.
3. Location within room or space.
4. Number of Copies: Submit three (3) copies of product schedule or list, unless otherwise indicated. Architect will return two (2) copies.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section " Construction Progress Documentation."

G. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."

H. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

I. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two (2) copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."

B. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

K. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

L. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

M. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

N. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

O. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."

P. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a

product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

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

S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S AND ARCHITECT’S CONSULTANT ACTION

A. General: Architect and Architect’s Consultant will NOT review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect and Architect's Consultant will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect or Architect's Consultant will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

C. Informational Submittals: Architect and Architect's Consultant will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01330

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary facilities and controls.

B. Temporary utilities include, but are not limited to, the following:

1. Electric power service.
2. Lighting.
3. Telephone service.
4. Water Service
5. Sanitary Facilities.
6. Protection Facilities.

1.3 USE CHARGES

A. Temporary Utilities Service: With the exception of telephone service, the owner will pay for service use charges for usage of temporary utilities, by all parties engaged in construction, at Project site for construction operations for this project.

1.4 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Provide materials suitable for use intended.

B. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

2.2 EQUIPMENT

A. General: Provide equipment suitable for use intended.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Water Service: Use of Owner's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

B. Sanitary Facilities: Use of Owner's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Electric Power Service: Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

D. Lighting: If required, provide temporary lighting that provides adequate illumination to allow for safe working conditions during normal working hours.

3.2 TEMPORARY FACILITIES INSTALLATION

A. Lighting: If required, provide temporary lighting that provides adequate illumination for construction operations and traffic conditions.

B. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with procedures approved by the architect.

    a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas as required.
    b. Maintain negative air pressure within work area using HEPA-equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.

3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.3 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage.

B. Termination and Removal: Remove each temporary facility when need for its service has ended.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Related Sections include the following:

1. Division 1 Section "Closeout Procedures" for submitting warranties for Contract closeout.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

A. Product List: Submit a list, in tabular from, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.

2. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.

3. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.

B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.

k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.
b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

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

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 1 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses. Coordinate delivery with Owner.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the

specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.

8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 60 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.

6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

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

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. General installation of products.
3. Progress cleaning.
4. Protection of installed construction.
5. Correction of the Work.

B. Related Sections include the following:

1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 1 Section "Submittal Procedures" for submitting surveys.
3. Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

2. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that

adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 PROGRESS CLEANING

A. General: Project work area is located in an occupied functioning building. Contractor shall use the utmost care to eliminate, when possible, or diminish all noise, water, dust, odors, etc. from the Project work area. Clean Project work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

C. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

F. Waste Disposal: Washing waste materials down drains will not be permitted.

G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

H. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

I. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

END OF SECTION 01700

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Mechanical systems piping and ducts.
3. Control systems.
4. Communication systems.
5. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Equipment supports.
2. Piping, ductwork, vessels, and equipment.
3. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut. Provide temporary dams to contain water and moisture.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Protect fixtures and personal property on other occupied floors in building from moisture, dust and impact damage.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete / Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

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

END OF SECTION 01731

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Final cleaning.

B. Related Sections include the following:

1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 1 Section "Execution Requirements" for progress cleaning of Project site.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
4. Advise Owner of changeover in heat and other utilities.
5. Complete final cleaning requirements, including touchup painting.
6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection

or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected. Expenses incurred by the Architect for more than one reinspection will be the responsibility of the Contractor and will be invoiced directly.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit one copy of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding into the building in order of the room numbers indicated on the Drawings.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

    a. Remove tools, construction equipment, machinery, and surplus material from Project site.
    b. Clean exposed hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.
    c. Sweep concrete floors broom clean in unoccupied spaces.
    d. Remove labels that are not permanent.
    e. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

C. Comply with safety standards for cleaning. Do not dump debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

SECTION 01782 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. Operation manuals for systems, subsystems, and equipment.
2. Maintenance manuals for the care and maintenance of systems and equipment.

B. Related Sections include the following:

1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
3. Division 1 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
4. Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

A. Final Submittal: Submit one of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.

b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions.
2. Operating standards.
3. Operating procedures.
4. Operating logs.
5. Wiring diagrams.
6. Control diagrams.
7. Piped system diagrams.
8. Precautions against improper use.
9. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.

2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

C. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."

D. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01782

SECTION 020700 - ROOF DEMOLTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. Removal of all existing modified bitumen roofing systems.
2. The removal of 1/2" fiberboard insulation, and the removal of a four-ply graveled built-up asphalt roof.
3. Removal of all base flashings, counterflashings, fascias, gutter, and wood cants.

D. For Alternate Bid Item No. 1, remove all existing asphalt shingles, felts, nails, and drip edges from mansard roof area.

E. Related Work Specified Elsewhere Includes:

1. 061100 Roof Rough Carpentry
2. 072210 Roof Insulation
3. 075410 Fully Adhered EPDM Roofing
4. 076000 Flashing and Sheet Metal

1.2 QUALITY ASSURANCE

A. All work of this Section shall be carried out in accordance with the State Demolition Code.

B. The existing building is the Trumbull Health Department. The Contractor shall notify the Owner of where work will start three (3) days before and provide a demolition and roofing schedule.

PART 2 - MATERIAL

2.1 POLY TARPS.

2.2 ROOF CEMENT.

PART 3 - EXECUTION

3.1 Prior to commencing any work called for in this Section, carefully examine the substrata and conditions under which the work is to be performed and notify the Consultant in writing of any unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected. Start of work shall indicate acceptance of conditions.

3.2 Contractor at no time shall uncover more roof area than can be covered with a complete new roof system and made watertight by the end of the working day or in case of a sudden storm. Contractor shall have on hand sufficient quantities of temporary covers in case of a sudden rain storm to dry-in the area. At the end of each day, install a temporary patch between new roofing and existing roofing to completely seal against moisture penetration.

3.3 Contractor shall not drop materials from the roof or remove materials or equipment in such a manner as to cause unnecessary noise or dust. All debris to be trash chuted into covered containers. No debris shall be visible on the grounds at the end of each workday.

3.4 All debris resulting from the work performed under this Section shall be cleaned up daily, loaded in proper containers, and removed from the site and disposed of by the Contractor on a daily basis. No debris shall pile up or be left overnight on the site.

3.5 Insulation surface shall be left broom clean, dry, and dust free, ready for application of new roofing materials.

3.6 Contractor shall provide a protective scaffolding walk way cover at the main entrance to protect from falling debris. Set on blocking as to not damage the concrete walk way.

END OF SECTION 020700

SECTION 061100 - ROOF ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. All items required to complete rough carpentry including curbs, wood blocking, nailing strips, furring, anchoring, shoring, bracing, nailers, and miscellaneous closures for all work, including electrical, mechanical work requiring such work as described elsewhere in the Specifications and Drawings.
2. All rough hardware required for fabrication and installation of the work, including bolts, spikes, anchors, nails, braces, insulation and similar items.
3. Temporary enclosures as required for protection of work, equipment and materials.

D. Related Work Specified Elsewhere Includes:

1. 020700 Roof Demolition
2. 072210 Roof Insulation
3. 076000 Flashing and Sheet Metal

1.2 SUBMITTALS

A. Submit sample of new wood blocking.

B. Submit certification of pressure treatment and kiln drying.

C. Sample of fasteners.

D. Certification of fastener corrosion resistance.

1.3 QUALITY ASSURANCE

A. National Forest Products Association (NFPA):

NFPA-1977 “National Design Specification for Wood Construction”

B. Southern Forest Products Association (SFPA):

SFPA-1977 “Grading Rules”

C. Western Wood Products Association (WWPA):

WWPA-1977 “Grading Rules for Western Lumber”

D. National Lumber Grades Authority (NLGA):

NLGA-1978 “Standard Grading Rules”

E. American Wood Preserver’s Bureau (AWPB):

LP-2 “Above Ground Use, Pressure Treated with Water-Bourne Preservatives”

F. American Plywood Association (APA):

(WB50) “Design Construction Guide” - APA Panel Roof Sheathing

1.4 Keep materials dry during delivery and storage. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and plywood, and provide air circulation within the stacks.

1.5 Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification and submit mill certificate that material has been inspected and graded in accordance with requirements.

PART 2 - PRODUCTS

2.1 LUMBER

A. Lumber for blocking, nailing and similar concealed work shall be graded and marked by the Manufacturer’s Association recognized as responsible for the grading rules of the species involved. All rough lumber shall be air-seasoned or kiln dried to a moisture content not to exceed 19%.

B. All lumber shall be surfaced four (4) sides and dressed to mill sizes.

C. Lumber species for blocking, nailing strips, and the like shall be Douglas Fir-Larch or Southern Pine No. 2 or better.

D. All lumber shall be pressure treated with water-borne, salt-treated preservative in accordance with American Wood Preservers Association (AWPA) Standards LP-2 and shall also bear American Wood Preservers Bureau (AWPB) quality mark designation. Wood preservative shall be Celcure, Wolman Salts, Chemonite, or approved equal. Oil based preservatives, such as creosote, will not be used. Cuprinol coatings are not acceptable. All pressure treated materials shall be kiln dried after treatment. Treater shall stamp KDAT on all pieces.

2.2 FASTENERS

A. Fasteners shall be corrosion resistant and suitable for the intended use, unless shown otherwise.

B. Wood to wood, use hot dip galvanized nails. ASTM A123.

C. Screw fasteners shall be hi performance fluorocarbon coated #12 or larger. They shall meet the requirements of FM document 4470 as it relates to corrosion, as manufactured by Olympic, Buildex, or Dekfast.

2.3 PLYWOOD: Plywood shall be span rated APA grade stamped conforming to product standard PS-1-83 Exposure #1, Group 1. Thickness as shown or required on the Drawings.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. Measurements required to insure proper fitting of all work will be obtained or verified at the building.

1. Fastening shall be as recommended by State Building Code Anchor and Nail schedule.

B. Crooked, warped, bowed, or cracked materials shall not be employed. Where found they shall be replaced.

3.2 BLOCKING, ETC.

A. All necessary underlayment for various roofs, nailing strips, cant strips, and blocking, shall be installed to fulfill the purposes for which they are to be used and as detailed. Top of blocking shall finish flush with top of insulation.

B. Attach to substrates as required to support applied loading. Countersink screws, bolts and nuts flush with surfaces, unless otherwise shown.

C. Install new plywood over wood studs to provide back for installation of new flashings at control joints. Also, at fascias.

3.3 ROUGH HARDWARE

A. All rough hardware and metal fastenings specified herein, or required for proper installation of carpentry shall be provided and installed. Nails, screws, bolts, anchors and similar items shall be galvanized, sized, and of types shown or of approved size and types required to secure members rigidly in place.

B. Furnish and install pressure treated lumber for all roof nailers, stripping, fillers, blocking and nailing for all sheet metal work. Coat or paint all cuts and holes required with a concentrated solution of the preservative, in accordance with AWPA Standard M-4.

3.4 TEMPORARY PROTECTION

A. Provide temporary protection such as wood doors, wood railings, protection on stairs, at floor openings and the like; maintain in good condition and satisfactory repair during life of contract.

3.5 JOB CONDITIONS

A. Prior to commencing any work called for in this Section, carefully examine the substrata and conditions under which the work is to be performed and notify the Consultant in writing of any unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected. Start of work shall indicate acceptance of conditions.

3.6 METHOD OF MEASUREMENT AND PAYMENT

A. The Project Representative shall be notified of all areas to be repaired.

END OF SECTION 061100

SECTION 072210 - ROOF INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. Flat and Tapered Isocyanurate roof insulation under new .080" PVC roofing system, as indicated on the Drawings and specified herein.

D. Related Work Specified Elsewhere Includes:

1. 061100 Roof Rough Carpentry
2. 075410 Fully Adhered EPDM Roofing
3. 076000 Flashing and Sheet Metal

1.2 REFERENCE STANDARDS

A. ASTM:

1. C1289, Type II, Class 1, Grade 3 Plastic Foam Insulation.

1.3 SUBMITTALS

A. Product data.

B. Tapered Shop Drawings.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, in sufficient quantity to allow continuity of work. Store on clean, raised platforms with approved weather protection when stored outdoors. Insulation shall be completely protected while in storage and during application to keep it dry at all times. Insulation shrink-wrap from the factory will not be considered adequate protection. Contractor shall tarp over all insulation and insure tarps are in place at the end of each work day.

1.5 JOB CONDITIONS

A. Proceed with work only when weather conditions comply with manufacturer's recommendations. Do not work when temperature is 40°F and falling or in wet weather.

PART 2 - MATERIALS

2.1 ISOCYANURATE INSULATION

A. ASTM C1289, Type II, Class 1, Grade 3, size 4'x4', flat insulation as shown on the plans, minimum compressive strength of 25 PSI as supplied or approved by the membrane manufacturer and covered under their full system warranty. Insulation shall be 2" thick.

2.2 FASTENERS

A. Screw type, corrosion resistant fasteners, of appropriate length to penetrate through deck a minimum of 1". Washer shall be minimum 3" diameter. Fastener and washer shall be FM approved for uplift and corrosion resistance and be supplied by the membrane manufacturer. Fasteners to be sized to penetrate through deck by 1/2".

2.3 COVER BOARD

A. Glass mat gypsum roof cover board, 1/4" thick by National Gypsum Company, product Dexcell, or as approved by the roofing manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that substrate is clean, dry, and proper for application of insulation. All work of other trades penetrating the roof deck must be complete. Verify that wood blocking is installed. Do not proceed until all defects are corrected.

B. Contractor shall investigate underside of deck for items, which may become penetrated by mechanical fasteners. Contractor shall exercise caution to avoid damaging items below the deck. Contractor shall repair at his cost any items damaged by mechanical fasteners.

3.2 INSULATION ATTACHMENT

A. Isocyanurate:

1. Install all layers of insulation with staggered end joints. Stagger end joints the maximum possible with a minimum of 12". Lay with long dimension joints continuous.

2. Cut boards neatly to fit all penetrations and projections. Set units with tight, but not forced joints. Trim or discard units with broken corners or similar defects. Provide tapered insulation around drains as indicated to provide sump area.
3. Fill all voids in lower layers greater than 1/4" in width with like insulation. Fill all voids in overlay greater than 1/8" in width with like insulation.

B. Over insulation, install one (1) layer of 1/4" cover board Dexcell over one (1) layer of new 2" insulation. Fasten to deck with one (1) fastener per 2 sq. ft.

3.3 PROTECTION: Do not install more insulation at one time than will be protected from wetting or other damage by installation of roofing membrane on the same day or prior to rain or dew. Remove installed insulation that has become wet and replace with dry material. Protect installed insulation at all times against damage by roof traffic.

A. Insulation shall be staggered and protected at the end of each day with a completed roofing system.

3.4 Leave surface ready to receive new roofing membrane.

END OF SECTION 072210

SECTION 073110 - ASPHALT SHINGLES – **ALTERNATE BID ITEM NO. 1**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The General Conditions, the Supplementary General Conditions, and any Special Requirements are hereby made a part of this Section.

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section.

C. Work of this Section includes, but is not limited to, the following:

1. Asphalt shingle roofing, complete with High Temp Ice and Water Shield membrane.
2. Coordinate installation of metal flashings.
3. NOTE: The work described herein is not intended to be a final and/or specific list of work to be performed or materials to be provided, but rather it is to be used as a guide. The Roofing Contractor is admonished to examine and review the Drawings and these Specifications in order to properly assess those items of work which are obviously requisite whether they are specifically noted or not. It is implicit in the intent of the Plans and Specifications that complete, watertight, expertly fabricated system of work be delivered to the Owners.

D. Related Work Specified Elsewhere Includes:

1. 020700 Roof Demolition
2. 061100 Roof Rough Carpentry
3. 076000 Flashing and Sheet Metal

1.2 REFERENCES

A. ASTM D-4586 – Asphalt Roof Cement, No Asbestos.

B. ASTM D-3018 – Class A Asphalt Shingles Surfaced with Mineral Granules, Type I.

C. ASTM D-3462- Standard Specification for Fiberglass Based Asphalt Shingles.

1.3 SHOP DRAWINGS AND PRODUCT DATA

A. Submit shop drawings of metal flashings, as related to asphalt shingle roofing.

B. Clearly indicate general construction, configurations, jointing methods and locations, fastening methods and locations and installation details.

C. Submit shingle manufacturer’s recommended nailing instructions and details for review by the Consultant.

1.4 QUALITY ASSURANCE

A. All workmanship shall conform to requirements of the NRCA, ARMA, and the manufacturer's printed literature.

B. If there is a conflict between these Specifications and the manufacturer's literature, the more stringent method shall be used.

PART 2 - PRODUCTS

2.1 ROOFING MATERIALS

A. Asphalt Shingles: Mineral granule surfaced type, 40 year self-sealing type, textured, U.L. listed wind resistance Class "A" fire rated, 110 mph wind resistance.

B. Nails: Annular round wire shingle type of **hot-dipped galvanized** steel, minimum 13/64 inch head diameter and 0.080 inch shank diameter, minimum 1-1/2 inch long, of sufficient length to penetrate 1/2 inch through roof sheathing.

C. Plastic Cement: ASTM D-4586, asphaltic type with mineral fiber components. Asbestos free, Type II.

D. Ice Dam Materials: High Temp Ice dam materials by W.R. Grace, Carlisle, or Certainteed. Film surfaced products only; no sand or granule surfaced materials will be allowed. ASTM D-1970.

2.2 FLASHING MATERIALS: See Section 076000 – Flashing and Sheet Metal.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. Install asphalt shingle roofing over surfaces which are dry, free of ridges, warps, and voids.

B. Coordinate installation of roof mounted components, or items projecting through. Ensure roof openings are properly sizes and located prior to roofing installation.

C. Complete roof installation to provide weathertight service.

3.2 ICE DAM MATERIAL

A. Install over entire mansard roof area.

B. 6" strip over drip edge.

3.3 ASPHALT SHINGLES INSTALLATION

A. Place asphalt shingles in straight coursing pattern with 5" weather exposure and to product double thickness over entire roof area.

B. Provide double course of shingles at eaves. Project first course of shingles 3/4" beyond underlayment. Nail starter shingles per manufacturer's directions in locations as shown on the manufacturer's literature.

C. Nail shingles in place in accordance with manufacturer's recommendations. No less than six (6) nails per shingle.

1. All nails to be hand driven. No guns will be allowed.

3.4 Cap all hips with individual shingles, maintaining 5" weather exposure. Place to avoid exposed nails. Nails shall be covered by next course by 1" to 2".

A. After installation, place a minimum 1" diameter dab of plastic cement under each individual shingle exposed to weather to prevent lifting.

3.5 GUARANTEE

A. Furnish written guarantee stating that the Contractor, at his own expense, will repair or replace all asphalt shingle work which becomes defective due to fault materials or workmanship within a period of two (2) years from the date of acceptance of the work. Submit two (2) copies.

B. Provide Asphalt Shingle manufacturer's 40 year warranty.

END OF SECTION 073110

SECTION 075410 - FULLY ADHERED EPDM ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. Provide all labor and material to complete the fully adhered .060" EPDM membrane system.
2. System to provide a 30 year labor and materials warranty from the manufacturer.
3. NOTE: The work described herein is not intended to be a final and/or specific list of work to be performed or materials to be provided, but rather it is to be used as a guide. The roofing contractor is admonished to examine and review the drawings and these specifications in order to properly assess those items of work which are obviously requisite whether they are specifically noted or not. It is implicit in the intent of the plans and specifications that a complete, watertight, expertly fabricated system of work be delivered to the Owners.

D. Related Work Specified Elsewhere Includes:

1. 061100 Roof Rough Carpentry
2. 072210 Roof Insulation
3. 076000 Flashing and Sheet Metal

1.2 QUALITY ASSURANCE

A. Installer shall be thoroughly trained and experienced in the materials and methods required for application of the EPDM Roof Membrane System and shall be by an applicator approved by the EPDM product manufacturer. Applicator shall have a minimum of five (5) years experience in this type of roofing.

B. All materials and workmanship shall comply with the recommendations of the National Roofing Contractors Association and S.P.R.I.

C. Owner may retain the services of a Roof Consultant to observe the roof construction.

1.3 SYSTEM

A. Fully adhered .060" Non-reinforced EPDM roof membrane system.

B. System shall carry Class A fire rating and FM wind storm rating.

1.4 SUBMITTALS

A. Approved Applicator: Submit evidence of contractor's status as an approved applicator of the EPDM. Roof Membrane System.

B. Manufacturer's Warranty: The manufacturer shall provide the Owner with a 30 year minimum written labor and material warranty for the System. These must be submitted prior to award of contract. The original copy of this warranty shall be delivered to the Owner when the job is completed and the terms of the warranty are satisfied.

C. Samples of all roofing products.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Use all means necessary to protect roofing materials before, during and after installation and to protect the work of all other trades. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Consultant and at no additional cost to the Owner.

B. All materials shall be delivered to the site in the original unopened packaging with legible manufacturer's identification and shall be stored in a fashion to provide continuous protection from damage and the weather.

C. Carefully inspect all materials from suppliers when unloading and reject immediately any damaged or unsuitable materials.

D. Adhesives shall be stored between 60oF and 80oF. If subject to lower or higher temperatures they shall be returned to room temperature for three (3) days before use. Do not use materials damaged in handling or storage.

PART 2 - MATERIALS (All materials to be low VOC compliant)

2.1 All materials used in the EPDM Roof System shall be furnished by the system manufacturer or its distributor except as noted herein. Acceptable manufacturers are Carlisle Syntec and Firestone. No others will be considered.

A. Roof Membrane: Membrane shall be an average .060 +/- 10% thick EPDM rubber sheet. No location may be less than .055 thick.

1. EPDM shall conform to ASTM D-4637, Type I, Class NR.
2. EPDM system shall carry a UL Class A rating.

B. Base Flashing: Flashing shall be .060" minimum cured EPDM sheet for straight run applications, and .060" minimum uncured EPDM sheet for corners and metal flange applications.

C. Bonding Adhesive: Shall be a low VOC contact adhesive as furnished by the system manufacturer. It shall be compatible to all materials to which the EPDM Roof Membrane, or flashing, is to be bonded. Not to be used to bond EPDM to EPDM.

D. Rubber Fastening Strips: 6" reinforced EPDM strips with applied seam tape for use at base tie in locations.

E. Splicing Adhesive or Seam Tape: Shall be as furnished by the manufacturer of the system. Shall be used to bond EPDM to EPDM or flashing.

F. Lap Splice Cleaner: Shall be furnished or approved by the manufacturer of the system.

G. Lap Sealant: Shall be trowel or gun consistency as supplied by the manufacturer of the system.

H. Water Cut-off Mastic: Shall be furnished by the manufacturer of EPDM system.

I. Termination Bars: Shall be furnished by the manufacturer of the system fabricated from 1/8" x 1" aluminum strip. Corners shall be rounded and free of burrs. Holes shall be slotted and spaced at 8" o/c.

J. Screws, Washers, Nailing Strips, and Accessories: Shall be as furnished by the manufacturer of the system, and as shown in the drawings. Fasteners and washers shall be treated so that they are corrosion resist. Fasteners shall pass the requirements of Factory Mutual Document 4470 as it relates to corrosion.

PART 3 - EXECUTION

3.1 PREPARATION OF SURFACES

A. Prior to commencing any work called for in this Section, carefully examine the substrate and conditions under which the work is to be performed, and notify the Consultant in writing of any unsatisfactory substrate or conditions. Do not proceed with the work until unsatisfactory conditions and substrate have been corrected. Start of work shall indicate acceptance of conditions.

B. Surfaces on which the EPDM Roof Membrane is to be applied shall be clean, smooth, free of fins, sharp edges, loose and foreign material, oil, grease, roof cement and solvents.

C. Before laying Insulation Board, the wood deck surfaces shall be inspected, cleaned, and repaired if unsatisfactory conditions are noted.

3.2 Provide pressure treated wood blocking as shown in Drawings. (See Section 061100).

3.3 INSTALLATION

A. General: Comply with manufacturer's instruction for installation of all materials. EPDM Roof Membrane shall be installed in the maximum sizes possible. Where there is a difference

between the manufacturer's recommendation and the Project Manual, the more stringent mode will be chosen. The Architect shall decide.

B. EPDM Membrane:

1. Inspect each sheet of membrane on both sides before installation. Sheets which are defective will be returned to manufacturer.
2. Position the EPDM roof membrane over the insulation substrate without stretching. Allow membrane to relax approximately 1/2 hour prior to bonding.
3. Fold sheet back 5' such that half of the underside of the sheet is exposed. Sheet fold shall be smooth without wrinkles or buckles.
4. Apply bonding adhesive evenly, without gobs or puddles, with a 9" wide plastic core short nap paint roller to both the sheet and the substrate at the rate specified by the membrane manufacturer. DO NOT APPLY BONDING ADHESIVE TO THE SPLICE AREA.
5. Allow adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
6. Roll the coated membrane into the coated substrate while avoiding wrinkles.
7. Brush down the bonded half of the sheet immediately after rolling the sheet into the adhesive, with a soft bristle push broom to achieve maximum contact.
8. Fold back the unbonded half of the sheet and repeat the bonding procedure.
9. Install adjoining sheets in the same manner, overlap splice edges a minimum of 6".

C. Splicing Procedure:

1. Remove dirt and excess dust from the mating surfaces of both sheets by wiping with a clean rag. If necessary scrub the sheet with warm soapy water and rinse with clean water. Extra cleaning is required where a factory seam intersects a field seam.
2. Fold back the top sheet and clean both mating surfaces with washing solvent. Change rags frequently; soiled/contaminated rags to be discarded. Allow surface to dry. The splice tape is then applied as directed by the manufacturer to both surfaces. Lap splice to be 6" minimum. Laps shall go with the flow of water.

    a. No wrinkles in the splice tape will be acceptable.
    b. Splice tape shall be exposed at the splice a nominal ¼" plus or minus ¼".

        (1) Exposure of > ½" will require patching.

    c. Roll the splice with a steel roller, using positive downward pressure, toward the outer edge of the splice. Any wrinkles, defects, or fishmouths must be patched with .060 flashing sheet. The patch must extend a minimum of 12" in each direction from the defect.
    d. After completion of the seam, strip all seams with a minimum 9" width of composite EPDM, splice tape flashing.

D. EPDM Attachment:

1. Fully Adhered Membrane System:

    a. Reinforced EPDM strips to be fastened 12" on center, to perimeter walls, adjoining vertical walls, penetrations and curbs as shown on Drawings or required by the EPDM manufacturer.

3.4 FLASHING

A. Flash all perimeters, curb flashings, and flashings around roof projections (vent pipes, etc.). Straight runs of base flashing may be done with cured .060" FR EPDM material. The flashing shall be fully spliced to the main sheet as per splicing procedure including in the seam sealant. Bonding adhesive shall be applied to the flashing and the surface to which it is to be bonded, and when dry to the touch, roll the flashing onto the surface.

B. Stack flashings shall have a minimum 8" height.

C. Flashing shall be done in accordance with details by the manufacturer of the system or as detailed herein, whichever is more stringent.

3.5 TERMINATION BARS: The perimeter of the roof and top edge of all projections shall be sealed as shown in the detail drawing or with a 1" x 1/8" aluminum termination bar fastened 8" on center, lap sealant at top edge, and water cut-off mastic behind membrane at termination bar location, whichever is more stringent.

3.6 REPAIR OF DEFICIENCIES IN ROOF MEMBRANE SYSTEM

A. Correction of splices, fishmouths, tears, etc., may be accomplished by splicing a membrane section over the affected area.

B. Select repair membrane which is the same material as that to be repaired.

C. Extend the repair membrane section at least 6" in every direction from the splice, tear, etc. to be corrected.

D. Remove field dirt by scrubbing the splice area with warm soapy water; rinse with clean water, and dry.

E. Follow the splicing procedure found above.

3.7 PERFORMANCE REQUIREMENTS

A. It is required that the roofing and associated work be watertight and not deteriorate excessively or at rates more rapid than indicated by manufacturer's published literature. Any failure of the work to comply with these requirements will be considered a failure of materials and workmanship under the guarantee.

B. It is intended that the whole system of roofing and associated work, under normal conditions and with normal maintenance, will perform without failure, including any necessity for excessive maintenance, for at least 20 years after the time of final acceptance.

C. Wind blow-off of roofing or associated work, when independent of structural failure, will be considered a failure of materials and workmanship, unless there is reasonable evidence that blow-off occurred at a time when wind velocities at the project site exceeded FM approved system wind speeds as published by the National Weather Service.

3.8 PROTECTION

A. Provide walk pads at top and bottom of ladder, at doors, or as shown on the Drawings. Install per manufacturer's directions.

3.9 INSPECTION AND WARRANTY

A. Inspection: Upon completion of installation of the Membrane and Flashing, the manufacturer of the system, or its representatives shall inspect the installation to ascertain if the EPDM Roof Membrane System is installed in accordance with specifications and details. The issuance of the manufacturer's Warranty shall indicate the manufacturer's approval of the installation.

B. Shop Drawings: Shop drawings are required for final inspection. They may be provided by the manufacturer of the system, its representative, "as built" drawings by the approved applicator. Shop drawings shall include:

1. Outline and size of the roof.
2. Location and type of penetrations.
3. Perimeter and penetration details.

C. The Contractor and manufacturer shall issue the pre-approved guarantees and warrantees each countersigned by all parties as follows:

1. Manufacturer's twenty (20) year guarantee including materials and workmanship.
2. Roofing Contractor's five (5) year warrantee including materials and workmanship.

END OF SECTION 075410

SECTION 076000 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. Furnish all labor, materials, tools, appliances, equipment, hoist, ladders, scaffolding, work platforms, etc., all as may be required to complete the work.
2. New 20 oz. lead coated copper, counterflashing, dutchmen cleats, and end wall closures.
3. New .040” aluminum fascia extensions.
4. New .040” aluminum hook strips.
5. New .040” aluminum gutter, shop made.
6. New 3”x4” .024” corrugated aluminum downspout.
7. New .040” aluminum standing seam coping cap **(Alternate Bid Item No. 1).**
8. New .050” aluminum clips **(Alternate Bid Item No. 1).**

D. Related Work Specified Elsewhere Includes:

1. 061100 Roof Rough Carpentry
2. 079000 Joint Sealants

1.2 QUALITY ASSURANCE

A. Preconstruction Conference: Review all proposed materials and procedures with the Owner prior to starting work. All work will be inspected and complete approval must be obtained before final acceptance by the Owner.

B. Comply with all applicable codes and regulations and all pertinent recommendations contained in “Architectural Sheet Metal Manual,” latest edition, published by the Sheet Metal and Air Conditioning Contractors Association.

C. Comply with all pertinent recommendations of the National Roofing Contractors Association as contained in the Association Manual of Roofing Practice.

D. Comply with all applicable recommendations of Revere Copper & Brass, Inc., as contained in “Copper and Common Sense,” latest edition.

1.3 REFERENCE STANDARDS (LATEST EDITIONS)

A. American Society for Testing & Materials (ASTM):

1. B32 Solder Metals
2. B101 Lead-Coated Copper Sheets
3. B370 Copper Sheet and Strip for Building Construction
4. A167 Stainless Steel
5. B209 Aluminum alloy sheet and plate.

1.4 SUBMITTALS

A. Submit samples and product data on all materials.

B. Submit Shop Drawings of flashing details should the detail deviate from the Drawings.

C. Submit two (2) copies of warranty to the Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials in manner to prevent damage and deterioration. Provide packaging as required for protection. Schedule delivery of materials to coincide with use on job. Store materials indoors protected from weather until installed.

1.6 JOB CONDITIONS

A. Install materials in dry weather on dry, smooth surfaces only.

B. If when installing roofing, insulation, etc., it is disclosed that repairs must be made to the structure before roofing work may continue, it shall be immediately called to the attention of the Architect/Consultant for their examination, documentation and solution. A price for such repairs or replacement as may be deemed necessary shall be presented to the Owners for their approval and authorization to issue a change order. Unless otherwise ordered the Roofing Contractor shall employ such tradesmen as may be required to perform corrective work.

C. The Roofing Contractor shall, during his operations and at all times, protect workmen of all trades, building personnel, general public and the structure against injury or damage. Provide roof top/edge protection for workmen as required by O.S.H.A.

1.7 WARRANTY

A. Prior to start of work, furnish sample of Contractor’s written warranty for five (5) years for the Owner’s approval.

PART 2 - PRODUCTS

2.1 LEAD-COATED COPPER: ASTM B101, Type I, Class A, cold rolled, hard temper, lead coated, with lead coating both sides.

A. Tolerances in thickness of sheet copper (exclusive of lead coating) shall be not less than the following:

WEIGHT (OUNCES)	THICKNESS (INCHES)	
NOMINAL	NOMINAL	MINIMUM
16	.0216	.019
20	.0270	.0245
24	.0323	.0295

(All thickness listed in these Specifications are exclusive of lead coatings.)

2.2 SOLDER: ASTM B32, 50% tin and 50% lead composition.

2.3 FLUX: Rosin, muriatic acid neutralized with zinc chloride for copper, stainless acid for stainless steel.

2.4 SCREWS, BOLTS, AND RIVETS: Copper, bronze or brass for fastening copper. Rivets shall be 1/8” diameter, stainless steel pop-type. Pop rivet shall have non-ferrous mandrels.

2.5 1/2” mesh stainless steel hardware cloth Type 302, 304 .050” welded wire.

2.6 Mill aluminum alloy 3003 H14, ASTM B209 thickness as shown on the Drawings.

PART 3 - EXECUTION

3.1 Sheet metal work of every description shall be performed by expert tradesmen thoroughly familiar with and normally engaged in this type of roofing.

3.2 The Roofing Contractor shall have been engaged in the type of work required of this Specification for not less than five (5) years. He shall, upon demand (prior to executing a contract), show evidence of work he has performed of similar scope of this caliber and magnitude.

3.3 SURFACES: Surfaces to be covered with sheet metal shall be smooth and free from defects of every description. All such surfaces shall be cleaned of dirt, rubbish and other foreign materials before sheet metal work is started. All projecting nails shall be driven flush with roof boarding.

A. Protect all work against breakage, staining or damage of any character. All such damage shall be repaired or replaced as ordered by the Architect/Consultant to his complete satisfaction and at the roofer's full expense.

B. The Roofing Contractor shall remove by mechanical or other means (including hand chipping) all products found on the structure, which will interfere with the proper installation of new work or in its performance after installation. Solvents will not be permitted except for unusual conditions and then only at the express approval of the Owner.

3.4 TINNING: Edges of all sheets to be soldered whether lead coated or not shall be tinned with solder on both sides for a width of not less than 2 inches. Lead coated materials shall be thoroughly wire brushed to produce a bright finish prior to tinning.

A. The Contractor shall protect tinned metals from becoming soiled.

3.5 SOLDERING: All soldering shall be done slowly with well heated coppers -to heat sheet thoroughly and to sweat solder completely through full width of seam. Ample solder shall be used and seam shall show at least one full inch of evenly flowed solder. Wherever possible, all soldering shall be done in flat position. Seams on slope steeper than 45 degrees shall be soldered second time. When soldering lead coated copper, liberal amount of flux shall be brushed into seams. Solder all seams in copper. All soldering shall be done within the tinned area.

3.6 OPEN FLAME EQUIPMENT: Open flame equipment shall be carefully placed and utilized to protect against promotion of accidental fire. Fire extinguishers and fireproof blankets shall be employed and/or be readily available for use. Extinguishers shall be within "arm's reach" of any workmen employing an open-flame device.

3.7 SOLDERING COPPER: Soldering shall be done with heavy soldering copper of blunt design, properly tinned before using. They shall weight not less than 10 pounds per pair except, when gas heated soldering torch is used, copper itself shall weigh not less than 3 pounds.

3.8 COUNTERFLASHING: Counterflashing to be at top of wall, where noted on the details. To be 20 oz. lead coated copper.

3.9 RIVETS: Rivets, where employed for soldered lap joints, shall generally be staggered at 3" intervals (1-1/2" between rivets). Where staggering of rivets is not possible they shall be installed at 1" intervals. All rivet heads shall be soldered.

3.10 If a particular piece of work has been inadvertently omitted from these Specifications or not shown on the Drawings the design principle and techniques carried in "The Application of Copper and Common Sense" as published by Revere shall govern.

3.11 Provide expansion joints in metal work maximum 30' on center.

3.12 COPING CAP **(ALTERNATE BID ITEM NO. 1)**

A. Provide and install a 1" standing seam coping cap in 10' sections. See detail for all aluminum gauges in connection with coping cap.

3.13 COORDINATION

A. The Contractor shall be responsible for directing and coordinating all trades engaged in performing work in each Section of the Specifications and properly schedule their operations to keep the overall work flowing smoothly with minimum interruption.

B. If, in the judgment of the Consultant, the Contractor can better serve the progress and general quality of the project as a whole by redirecting their efforts, they shall comply with such directive forthwith; said compliance shall be without recourse.

C. The Roofing Contractor shall delegate a job superintendent to attend all job meetings and make all manner of decisions in his stead which shall, once made, be as binding as though they were made by The/A Principal of the Company.

D. The Contractor shall be required to fully cooperate with and coordinate his and his Subcontractors work with the contracting persons or project managers selected and designated by the Owners.

END OF SECTION 076000

SECTION 077100 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. New continuous aluminum soffit vent.
2. New aluminum rain proof venting louvers at back side of mansard.

D. Related Work Specified Elsewhere Includes:

1. 061100 Roof Rough Carpentry
2. 075410 Fully Adhered EPDM Roofing

1.2 SUBMITALS

A. Submit Shop Drawings and product data.

B. Indicate on Shop Drawings, configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.

C. Provide product data on shape of components, materials and finishes, anchor types and locations.

D. Submit manufacturer’s installation instructions.

PART 2 - MATERIALS

2.1 SOFFIT VENT: Brandguard vent, Model No. CS2031-FFS, with black insect screen, 2” wide or equal.

2.2 LOUVERED VENT: Greenheck, Model No. EHH-201, 2” blade depth, size 12”x12” or equal. To be aluminum. Color by Architect.

PART 3 - EXECUTION

3.1 INSPECTION

A. Beginning of installation means acceptance of existing conditions.

B. Contractor shall field measure all existing curbs and match the existing sizes to the new replacement curbs. This is for all rooftop units and exhaust fans.

3.2 INSTALLATION

A. Install components in accordance with manufacturer's instructions.

B. Coordinate roofing membrane and base flashings with installation of components of this Section.

END OF SECTION 077100

SECTION 079000 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. This Contractor shall provide all labor, equipment, and materials required to perform the work called for in this Section. This Contractor shall coordinate his work with other trades and work in other Sections.

C. Work of this Section includes, but is not limited to, the following:

1. Caulking of exterior joints, masonry and metal, metal and metal, and joints between dissimilar materials.

D. Related Work Specified Elsewhere Includes:

1. 076000 Flashing and Sheet Metal

1.2 SUBMITTALS

A. Submit product data and samples of all materials.

B. Submit warrantees at completion of work.

PART 2 - PRODUCTS

2.1 GENERAL: Sealants equal to products listed by Pecora Corporation, Harleysville, PA 19438.

2.2 SEALANTS: colors as selected by the Owners.

A. One-part Silicone, (Non-Sag): TT-S-001543A, Type II: #864 Architectural Silicone Sealant.

B. One-part Polysulfide, (Non-Sag): TT-S-00230C, Type II: #GC-9 Synthcalk Sealant.

2.3 FOAM BACK-UP: Polyethylene rod equal to Denverfoam by Pecora.

2.4 SURFACE PRIMERS: As recommended by sealant manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION: Verify that joints to receive sealants are proper depth, clean, dry, frost-free, and appropriate for application of sealants.

3.2 PREPARATION: Prime required surfaces with proper materials in accordance with manufacturer's instructions.

3.3 APPLICATION: For joints up to 1/2" width, sealant depth shall equal width. Sealant joints over 1/2" width shall have depth equal one-half width. Fill excessive depth with foam back-up rod material. Fill joint with sealant to required depth using filler to obtain concave shape. Do not caulk when temperature is below 40o F. Leave surfaces neat, smooth, clean and watertight. Exterior joints to have foam back-up material as indicated. Apply sealant with hand gun, tooling if necessary to obtain concave surface within ten minutes. Remove any masking tape immediately.

3.4 SCHEDULE

Exterior Masonry:	One-part Polysulfide
Exterior Dissimilar Materials:	One-part Polysulfide
Flashing and Sheet Metal:	One-part Silicone

3.5 GUARANTEE: Furnish written guarantee stating that the Contractor at his own expense will repair or replace all caulking work which becomes defective due to faulty materials or workmanship within a period of five (5) years from the date of acceptance of the work.

END OF SECTION 079000