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SECTION 01 1100
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements Summary of Work requirements.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Provisions contained in Division 01 apply to Sections of Divisions 02 through 49 of Specifications. Instructions contained in Specifications are directed to Contractor. Unless specifically provided otherwise, obligations set forth in Contract Documents are obligations of Contractor.
- B. Contractor shall furnish total labor, materials, equipment, and services necessary to perform The Work in accordance with Contract Documents.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 1400**WORK RESTRICTIONS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Work Restrictions.

1.2 PROJECT CONDITIONS

- A. During construction period, Contractor will have use of premises for construction operations. Contractor will ensure that Contractor, its employees, subcontractors, and their employees comply with following requirements:
1. Confine operations to areas within Contract limits shown on Drawings. Do not disturb portions of site beyond Contract limits.
 2. Do not allow alcoholic beverages, illegal drugs, or persons under their influence on Project site.
 3. Do not allow use of tobacco in any form on Project Site.
 4. Do not allow pornographic or other indecent materials on site.
 5. Do not allow work on Project site on Sundays except for emergency work.
 6. Refrain from using profanity or being discourteous or uncivil to others on Project Site or while performing The Work.
 7. Wear shirts with sleeves, wear shoes, and refrain from wearing immodest, offensive, or obnoxious clothing, while on Project Site.
 8. Do not allow playing of obnoxious and loud music on Project Site. Do not allow playing of any music within existing facilities.
 9. Do not build fires on Project Site.
 10. Do not allow weapons on Project Site, except those carried by law enforcement officers or other uniformed security personnel who have been retained by Owner or Contractor to provide security services.
- B. Existing Facilities:
1. Provide reasonable access and use of existing site.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

SECTION 01 2300

ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements to prepare and process Alternates.
- B. With its bid, Contractor has provided prices for following alternate products, materials, equipment, systems, methods, units of work, or major elements of The Work. Any of these Alternates may, at Owner's option, be selected for The Work in place of corresponding requirements of Contract Documents
 - 1. Alternate No. 1: All material, labor and work associated with Housing Units 13 and 14 as outlined in the instructions to bidders and per the specifications.
- C. Contractor acknowledges that description for each Alternate is incomplete and abbreviated, but that it implies that each Alternate will be complete for scope of work affected.
- D. Contractor will coordinate related work and modify surrounding work as required to properly integrate with work of each Alternate selected by Owner.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 2900

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements to prepare and process Applications for Payments.

1.2 PAYMENT REQUESTS

- A. Use Payment Request forms per by Owner direction.
- B. Each Payment Request will be consistent with previous requests and payments certified by Architect and paid for by Owner.
- C. Request Preparation:
 - 1. Complete every entry on Payment Request form.
 - 2. Entries will match data on approved schedule of values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.
 - 3. Submit signed Payment Request to Architect with current Construction Schedule.
- D. Provide following submittals before or with submittal of Initial Payment Request:
 - 1. List of Subcontractors.
 - 2. Initial progress report.
 - 3. Contractor's Construction Schedule.
 - 4. Submittal Schedule.

1.3 SCHEDULE OF VALUES

- A. Submit schedule of values on Owner's standard form to Architect 10 days minimum before submission of Initial Payment Request as a necessary condition before payment will be processed. Coordinate preparation of schedule of values with preparation of Contractor's Construction Schedule. Correlate line items in Schedule of Values with other required administrative schedules and forms, including:
 - 1. Contractor's Construction Schedule.
 - 2. Payment Request form.
 - 3. Schedule of Allowances.
 - 4. Schedule of Alternates.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 3100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Project Management and Coordination on Projects.

1.2 PROJECT COORDINATION

- A. Project designation for this Project is SHR WVDC Roof Replacement Project.
- B. This Project designation will be included on documents generated for Project by Contractor and Subcontractors, or be present on a cover letter accompanying such documents.

1.3 MULTIPLE CONTRACT COORDINATION

- A. Contractor shall be responsible for accurately maintaining and reporting schedule of The Work from Notice to Proceed to date of Substantial Completion.
- B. Contractor shall be responsible for providing Temporary Facilities And Controls for those who perform work on Project from Notice to Proceed to date of Substantial Completion.
- C. Contractor shall be responsible for providing Construction Waste Management And Disposal services for those who perform work on Project from Notice to Proceed to date of Substantial Completion.
- D. Contractor shall be responsible for Final Cleaning for entire Project Site.

1.4 PROJECT MEETINGS AND CONFERENCES

- A. Preconstruction Conference:
 - 1. Attend preconstruction conference and organizational meeting scheduled by Architect at Project site or other convenient location.
 - 2. Be prepared to discuss items of significance that could affect progress, including such topics as:
 - a. Construction schedule.
 - b. Critical Work sequencing.
 - c. Current problems.
 - d. Designation of responsible personnel.
 - e. Material/Distribution of Contract Documents.
 - f. Equipment deliveries and priorities.
 - g. General schedule of inspections by Architect and its consultants.
 - h. General inspection of tests.
 - i. Office, work, and storage areas.
 - j. Preparation of record documents and O & M manuals.
 - k. Procedures for processing interpretations and Modifications.
 - l. Procedures for processing Payment Requests.
 - m. Project cleanup.
 - n. Security.

- o. Submittal of Product Data, Shop Drawings, Samples, Quality Assurance / Control submittals.
 - p. Use of the premises.
 - q. Work restrictions.
 - r. Working hours.
- B. Progress Meetings:
- 1. Attend progress meetings at Project site at regularly scheduled intervals determined by Owner, at least once a month.
 - 2. Progress meetings will be open to Owner, Architect, Subcontractors, and anyone invited by Owner, Architect, and Contractor.
 - 3. Be prepared to discuss items of significance that could affect progress, including following:
 - a. Progress since last meeting.
 - b. Whether Contractor is on schedule.
 - c. Activities required to complete Project within Contract Time.
 - d. Off-site fabrication problems.
 - e. Access.
 - f. Site use.
 - g. Temporary facilities and services.
 - h. Hours of work.
 - i. Hazards and risks.
 - j. Project cleanup.
 - k. Quality and Work standards.
 - l. Status of pending modifications.
 - m. Documentation of information for Payment Requests.
 - n. Maintenance of Project records.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 3200**CONSTRUCTION PROGRESS DOCUMENTATION****PART 1 - GENERAL****1.1 SUMMARY****A. Section Includes But is Not Limited To:**

1. Administrative and procedural requirements for documenting the progress of construction during performance of the Work.

1.2 SCHEDULING OF WORK**A. Bar Chart Schedule:**

1. Submit horizontal bar chart schedule before Preconstruction Conference. Provide separate time bar for each construction activity listed on Owner's payment request form. Within each time bar, show estimated completion percentage. Provide continuous vertical line to identify first working day of each week. Show each activity in chronological sequence. Show graphically sequences necessary for completion of related portions of The Work. As The Work progresses, place contrasting mark in each bar to indicate actual completion.
2. Provide copies of schedule for Architect and Owner and post copy in field office.
3. Revise schedule monthly. Send copy of revised schedule to Owner and Architect and post copy in field office.

B. Daily Construction Reports:

1. Prepare daily reports of operations at Project including at least following information:
 - a. List of Subcontractors at site.
 - b. Approximate count of personnel at site by trade.
 - c. High and low temperatures, general weather conditions.
 - d. Major items of equipment on site.
 - e. Materials or equipment items arriving at or leaving site.
 - f. Accidents and unusual events.
 - g. Site or structure damage by water, frost, wind, or other causes.
 - h. Meetings, conferences, and significant decisions.
 - i. Visitors to the job including meeting attendees.
 - j. Stoppages, delays, shortages, losses.
 - k. Any tests made and their result if known.
 - l. Meter readings and similar recordings.
 - m. Emergency procedures.
 - n. Orders and requests of governing authorities.
 - o. Modifications received, carried out.
 - p. Services connected, disconnected.
 - q. Equipment or system tests and start-ups.
 - r. Brief summary of work accomplished that day.
 - s. Signature of person preparing report.
2. Submit daily reports to Architect at least weekly.
3. Maintain copies of daily reports at field office.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

SECTION 01 3300**SUBMITTAL PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Submittal Procedures.

1.2 SUBMITTAL SCHEDULE

- A. Furnish submittal schedule within 10 days after receipt of Notice to Proceed, listing items specified to be furnished for review to Architect including product data, shop drawings, samples, and Informational submittals.
1. Coordinate submittal schedule with Contractor's construction schedule.
 2. Enclose the following information for each item:
 - a. Scheduled date for first submittal.
 - b. Related Section number.
 - c. Submittal category.
 - d. Name of Subcontractor.
 - e. Description of part of the Work covered.
 - f. Scheduled date for resubmittal.
 - g. Scheduled date for Architect's final release or approval.
- B. Print and distribute copies to Architect and Owner and post copy in field office. When revisions are made, distribute to same parties and post in same location.
- C. Revise schedule monthly. Send copy of revised schedule to Owner and Architect.

1.3 SUBMITTAL PROCEDURES

- A. Coordination:
1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently before performance of related construction activities to avoid delay.
 - a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - b. Coordinate transmittal of different types of submittals required for related elements of The Work so processing will not be delayed by need to review submittals concurrently for coordination. Architect reserves right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 2. Processing Time:
 - a. Allow sufficient review time so installation will not be delayed by time required to process submittals, including time for resubmittals.
 - 1) Allow 14 days for initial review. Allow additional time if processing must be delayed to allow coordination with subsequent submittals. Architect will promptly advise Contractor when submittal being processed must be delayed for coordination.
 - 2) If an intermediate submittal is necessary, process same as initial submittal.
 - 3) Allow 7 days for reprocessing each submittal.

- 4) No extension of Contract Time will be authorized because of failure to transmit submittals to Architect in sufficient time before work is to be performed to allow processing.
3. Identification:
 - a. Place permanent label or title block on each submittal for identification. Include name of entity that prepared each submittal on label or title block.
 - 1) Provide space approximately 4 by 5 inches on label or beside title block on Shop Drawings to record Contractor's review and approval markings and action taken.
 - 2) Include following information on label for processing and recording action taken:
 - a) Project name.
 - 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) Number and title of appropriate Specification Section.
 - i) Drawing number and detail references, as appropriate.
4. Transmittal:
 - a. Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using transmittal letter. On transmittal, record relevant information and requests for data. Include Contractor's certification that information complies with Contract Document requirements, or, on form or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations.
 - b. Submittals received from sources other than Contractor or not marked with Contractor's approval will be returned without action.

1.4 ACTION SUBMITTALS

- A. Product Data:
 1. Submit Product Data, as required by individual Sections of Specifications.
 2. Mark each copy of each set of submittals to show choices and options used on Project. Where printed Product Data includes information on products that are not required for Project, mark copies to indicate information relating to Project.
 3. Certify that proposed product complies with requirements of Contract Documents. List any deviations from those requirements on form or separate sheet.
 4. Submit electronic copy each required submittal unless otherwise required. Architect will return submittal marked with action taken and with corrections or modifications required.
- B. Shop Drawings:
 1. Submit newly prepared graphic data to accurate scale. Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches. Highlight, encircle, or otherwise show deviations from Contract Documents. Include following information as a minimum:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 2. Do not reproduce Contract Documents or copy standard information as basis of Shop Drawings. Standard printed information prepared without specific reference to Project is not acceptable as Shop Drawings.
 3. Review and designate (stamp) approval of shop drawings. Unless otherwise specified, submit to Architect electronic copy of shop drawings required by Contract Documents. Shop drawings not required by Contract Documents, but requested by Contractor or supplied by Subcontractor, need not be submitted to Architect for review.

C. Samples:

1. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 - a. Mount, display, or package Samples so as to ease review of qualities specified. Prepare Samples to match samples provided by Architect, if applicable. Include following:
 - 1) Generic description of Sample.
 - 2) Sample source.
 - 3) Product name or name of manufacturer.
 - 4) Compliance with recognized standards.
 - 5) Availability and delivery time.
2. Submit 3 Physical Samples for review of kind, color, pattern, and texture, for final check of these characteristics with other elements, and for a comparison of these characteristics between final submittal and actual component as delivered and installed. Color card is not acceptable.
 - a. Where variations in color, pattern, texture or other characteristics are inherent in material or product represented, submit set of three samples minimum that show approximate limits of variations.
 - b. Refer to other specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to Contractor for incorporation into The Work. Such Samples shall be undamaged at time of use. On transmittal, indicate special requests regarding disposition of Sample submittals.
3. Where Samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit full set of choices for material or product. Preliminary submittals will be reviewed and returned with Architect's mark indicating selection and other action.
4. Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit three sets. One will be returned marked with action taken.
5. Samples, as accepted and returned by Architect, will be used for quality comparisons throughout course of construction.
 - a. Unless noncompliance with Contract Documents is observed, submittal may serve as final submittal.
 - b. Sample sets may be used to obtain final acceptance of construction associated with each set.

1.5 INFORMATIONAL SUBMITTALS

- A. Informational submittals are design data, test reports, certificates, manufacturer's instructions, manufacturer's field reports, and other documentary data affirming quality of products and installations. Submit electronic copy of each required submittal unless otherwise required. Architect will return electronic copy marked with action taken and with corrections or modifications required.
1. Certificates: Describe certificates intended to document affirmations by Contractor or others that the work is in accordance with the Contract Documents, but do not repeat provisions of Parts 2 or 3.
 2. Delegated Design Submittals / Design Data: Describe submittals intended to demonstrate design work prepared by Contractor's licensed professionals.
 3. Test And Evaluation Reports: Describe submittal of test reports or evaluation service reports intended to document required tests.
 4. Manufacturer Instructions: Describe submittals intended to document manufacturer instructions.
 5. Source Quality Control Submittals: Describe submittal of source quality control documentation.
 6. Field Quality Control Submittals: Describe submittal of field quality control documentation.
 7. Manufacturer Reports: Describe submittal of Manufacturer reports as documentation of manufacturer activities.
 8. Special Procedure Submittals: Describe submittals intended to document special procedures. An example would be construction staging or phasing for remodeling an existing facility while

keeping it in operation. While the Contractor would normally be responsible for managing this, submittal of his plan as documentation could be specified.

9. Qualification Statements: Describe submittals intended to document qualifications of entities employed by Contractor.

1.6 CLOSEOUT SUBMITTALS

- A. This title groups submittals that occur during project closeout. Coordinate with section 01 7800 Closeout Submittals.
 1. Maintenance Contracts: Describe submittal of the maintenance contract.
 2. Operations & Maintenance Data: Describe submittal of operation and maintenance data necessary for products of the Section.
 3. Bonds: Describe submittals of bonds specific to this Section.
 4. Warranty Documentation: Describe submittal of final executed warranty document.
 5. Record Documentation: Describe submittal of record documentation specific to this Section.
 6. Software: Describe submittal of extra copy operating system and other utility software necessary to operate and maintain software during life of product.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. This title groups maintenance material submittals required by Section.
 1. Spare Parts: Describe spare parts necessary for Owner's use in facility operation and maintenance. 'Parts' are generally understood to be items such as filters, motor drive belts, lamps, and other similar manufactured items that require only simple replacement.
 2. Extra Stock Materials: Describe extra stock materials to be provided for Owner's use in facility operation and maintenance. Extra stock materials are generally understood to be items such as ceiling tiles, flooring, paint etc.
 3. Tools and Software:
 - a. Describe tools to be provided for Owner's use in facility operation and maintenance. Tools are generally understood to be wrenches, gauges, circuit setters, etc, required for proper operation or maintenance of a system.
 - b. If necessary, describe submittal of an extra copy of operating system and other utility software necessary to operate and maintain the software during expected life of product.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 3500**SPECIAL PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Special Procedures.

1.2 ACCELERATION OF WORK

- A. Complete The Work in accordance with Construction Schedule. If Contractor falls behind schedule, take such actions as are necessary, at no additional expense to Owner, to bring progress of The Work back in accordance with schedule.
- B. Owner may request proposal for completion of The Work at date earlier than expiration of Contract Time. Promptly provide requested proposal showing cost of such acceleration of The Work. Consult with Owner and Architect regarding possible options to decrease cost of such acceleration. If Owner determines to order acceleration of The Work, change in Contract Sum and Contract Time resulting from acceleration will be included in a Change Order.

1.3 OWNER'S SAFETY REQUIREMENTS

- A. Personal Protection:
 - 1. Contractor shall ensure:
 - a. Positive means of fall protection, such as guardrails system, safety net system, personal fall arrest system, etc, is provided to employees whenever exposed to a fall six feet or more above a lower level.
 - b. Personnel working on Project shall wear hard hats and safety glasses as required by regulation and hazard.
 - c. Personnel working on Project shall wear long or short sleeve shirts, long pants, and hard-toed boots or other sturdy shoes appropriate to type and phase of work being performed.
- B. Contractor Tools And Equipment:
 - 1. Contractor shall ensure:
 - a. Tools and equipment are in good working condition, well maintained, and have necessary guards in place.
 - b. Ground Fault Circuit Interrupters (GFCI) is utilized on power cords and tools.
 - c. Scaffolding and man lifts are in good working condition, erected and maintained as required by governmental regulations.
 - d. Ladders are in good condition, well maintained, used as specified by Manufacturer, and secured as required.
- C. Miscellaneous:
 - 1. Contractor shall ensure:
 - a. Protection is provided on protruding rebar and other similar objects.
 - b. General Contractor Superintendent has completed the OSHA 10-hour construction outreach training course or equivalent.
 - c. Implementation and administration of safety program on Project.

- d. Material Safety Data Sheets (MSDS) are provided for substances or materials for which an MSDS is required by governmental regulations before bringing on site.
 - e. Consistent safety training is provided to employees on Project.
- 2. Report accidents involving injury to employees on Project that require off-site medical treatment to Owner's designated representative.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 4000**QUALITY REQUIREMENTS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are used to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
 - 1. Specific quality assurance and quality control requirements for individual construction activities are specified in Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality assurance and quality control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Section 01 3300: 'Submittal Procedures'.
 - 2. Section 01 4301: 'Quality Assurance – Qualifications' establishes minimum qualification levels required.
 - 3. Divisions 01 thru 49 establish responsibility for providing specific testing and inspections.

1.3 REFERENCES

- A. Association Publications:
 - 1. Council of American Structural Engineers. CASE Form 101: *Statement of Special Inspections*. Washington, DC: CASE, 2001. (c/o American Council of Engineering Companies, 1015 15th St., NW, Washington, DC 20005; 202-347-7474; www.acec.org).
 - 2. International Code Council (IBC):
 - a. IBC Chapter 17, 'Structural Tests and Special Inspections'.
 - 3. The American Institute of Architects. AIA Document A201, *General Conditions of the Contract for Construction*. Washington, DC. 2007.
 - 4. The Construction Specifications Institute. Project Resource Manual/CSI Manual of Practice, 5th Edition. New York, McGraw-Hill, 2005.
- B. Definitions:
 - 1. Accreditation: Process in which certification of competency, authority, or credibility is presented. Verify that laboratories have an appropriate quality management system and can properly perform certain test methods (e.g., ANSI, ASTM, and ISO test methods) and calibration parameters according to their scopes of accreditation.
 - 2. Approved: To authorize, endorse, validate, confirm, or agree to.

3. Contract Documents: Engineering and Architectural Drawings and Specifications issued for construction, plus clarification drawings, addenda, approved change orders and contractor designed elements.
4. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with requirements indicated; and having complied with requirements of authorities having jurisdiction.
5. Field Quality Control: Testing, Inspections, Special Testing and Special Inspections to assure compliance to Contract Documents.
6. Inspection/Special Inspection: Inspection of materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with approved construction documents and referenced standards:
 - a. Inspection: Not required by code provisions but may be required by Contract Documents.
 - b. Special Inspection: Required by code provisions and by Contract Documents.
 - c. Inspection-Continuous: Full-time observation of the Work requiring inspection by approved inspector who is present in area where the Work is being performed.
 - d. Inspection-Periodic: Part-time or intermittent observation of the Work requiring inspection by approved inspector who is present in area where the Work has been or is being performed and at completion of the Work.
7. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - a. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of corresponding generic name.
8. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish standard by which the Work will be judged.
9. Observation: Visual observation of building / site elements or structural system by registered design professional for general conformance to approved construction documents at significant construction stages and at completion. Observation does not include or waive responsibility for performing inspections or special inspections.
10. Owner's Representative: Owner's Designated Representative (Project Manager or Facilities Manager) who will have express authority to bind Owner with respect to all matters requiring Owner's approval or authorization.
11. Preconstruction Testing: Tests and inspections that are performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
12. Product Testing: Tests and inspections that are performed by testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
13. Quality Assurance: Testing, Inspections, Special Testing and Special Inspections provided for by Owner.
14. Quality Control: Testing, Inspections, Special Testing and Special Inspections provided for by Contractor.
15. Service Provider: Agency or firm qualified to perform required tests and inspections.
16. Source Quality Control Testing: Tests and inspections that are performed at source, i.e., plant, mill, factory, or shop.
17. Special Inspection: See Inspection.
18. Special Inspector: Certified individual or firm that implements special inspection program for project.
19. Special Test: See Test.
20. Test/Special Test: Field or laboratory tests to determine characteristics and quality of building materials and workmanship.
 - a. Test: Not required by code provisions but may be required by Contract Documents.
 - b. Special Test: Required by code provisions and by Contract Documents.
21. Testing Agency: Entity engaged to perform specific tests, inspections, or both.

22. Testing Agency Laboratory: Agency or firm qualified to perform field and laboratory tests to determine characteristics and quality of materials and workmanship.
23. Verification: Act of reviewing, inspecting, testing, etc. to establish and document that product, service, or system meets regulatory, standard, or specification requirements.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and standards establish different or conflicting requirements for minimum quantities or quality levels, comply with most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: Quantity or quality level shown or specified shall be minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for context of requirements. Refer uncertainties to Architect for decision before proceeding.

1.5 QUALITY ASSURANCE

- A. Quality Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to verify compliance and guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

1.6 QUALITY CONTROL

- A. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements performed by Contractor. They do not include inspections, tests or related actions performed by Architect, Owner, governing authorities or independent agencies hired by Owner or Architect.
 1. Where services are indicated as Contractor's responsibility, engage a qualified Testing Agency to perform these quality control services.
 - a. Contractor shall not employ same testing entity engaged by Owner, without Owner's written approval.
- B. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

2. Comply with Contract Document requirements for Section 01 7300 "Execution" for Cutting and Patching.
- B. Protect construction exposed by or for Quality Assurance and Quality Control activities.
 - C. Repair and protection are Contractor's responsibility, regardless of assignment of responsibility for Quality Assurance and Quality Control Services.

END OF SECTION

SECTION 01 4100
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Regulatory Requirements.

1.2 ASBESTOS

- A. Contract Documents for this Project have been prepared in accordance with generally accepted professional architectural and engineering practices. Accordingly, no asbestos or products containing asbestos have been knowingly specified for this Project. Notify Architect immediately for instructions if materials containing asbestos are brought to site for inclusion in the Work.
- B. At Architect's direction and with Owner's approval, a certified asbestos inspector will collect samples and an independent testing laboratory will perform testing procedures on suspect materials.
- C. Certify that based upon best knowledge, information, inspection, and belief no building materials containing asbestos were used in construction of Project. Submit certification on form provided by Owner.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 4200**REFERENCES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Reference standards, definitions, specification format, and industry standards.

1.2 REFERENCES

- A. Definitions:
1. Approved: The term "approved," when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
 2. Directed: The term "directed" is a command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," and "permitted" have the same meaning as "directed."
 3. Experienced: The term "experienced," when used with an entity, means having successfully completed a minimum of ten previous projects similar in size and scope to this Project; being familiar with the special requirements indicated, and having complied with requirements of authority having jurisdiction.
 4. Furnish: The term "furnish" means supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
 5. General: Basic Contract definitions are included in the Conditions of the Contract.
 6. Indicated: The term "indicated" refers to requirements expressed by graphic representations, or in written form on Drawings, in Specifications, and in other Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
 7. Install: The term "install" describes operations at Project site including unloading, temporary storage, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
 8. Installer: An "Installer" is the Contractor or another entity engaged by the Contractor, as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 9. Project Site: The term "Project site" means the space available for performing construction activities. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.
 10. Provide: The term "provide" means to furnish and install, complete and ready for the intended use.
 11. Regulations: The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
 12. Submitted: The terms "submitted," "reported," "satisfactory" and similar words and phrases means submitted to Architect, reported to Architect and similar phrases.
 13. Testing Agencies: A "testing agency" is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, or to report on and, if required, to interpret results of those inspections or tests.
 14. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

B. References Standards:

1. Specification Format: Specifications will follow MasterFormat™ 2024 for organizing numbers and titles. (The Construction Specifications Institute, Project Resource Manual/CSI Manual of Practice, 5th Edition. New York, McGraw-Hill, 2005).
 - a. Specification Identifications:
 - 1) The Specifications use section numbers and titles to help cross referencing in the Contract Documents.
 - 2) Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
 - b. Specification Language:
 - 1) Specifications should be prepared, with concern and respect for their legal status. Specifications should be Clear, Concise, Correct and Complete.
 - 2) Streamlining: Streamlining is used to list products, materials, reference standards, and other itemized specifications. This technique places the subject first and provides keywords for quick reference
 - c. Sentence Structure:
 - 1) Specifications to be written in the "Imperative Mood".
 - a) The verb that clearly defines the action becomes the first word in the sentence.
 - b) The imperative sentence is concise and readily understandable.
 - 2) Streamlining is used to list products, materials, reference standards, and other itemized specifications. This technique places the subject first and provides keywords for quick reference.
 - d. Abbreviated Language:
 - 1) Abbreviations should be used only on drawings and schedules where space is limited.
 - 2) Abbreviations with multiple meanings should be avoided, unless used in different disciplines where their meaning is clear from the context in which they are used.
 - 3) Abbreviations should be limited to five or fewer letters
 - a) The verb that clearly defines the action becomes the first word in the sentence.
 - e. Symbols:
 - 1) Caution should apply to symbols substituted for words or terms.
 - f. Numbers:
 - 1) The use of Arabic numerals rather than words for numbers is recommended.

C. Industry Standards:

1. Except where Contract Documents specify otherwise, construction industry standards will apply and are made a part of Contract Documents by reference.
2. Where compliance with two or more standards is specified and standards apparently establish different or conflicting requirements for minimum quantities or quality levels, refer to Architect for decision before proceeding. Quantity or quality level shown or specified will be minimum provided or performed. Actual installation may comply exactly with minimum quantity or quality specified, or it may exceed minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for context of requirements. Refer uncertainties to Architect for decision before proceeding.
3. Each entity engaged in construction on Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with Contract Documents. Where copies of standards are needed for performance of a required construction activity, Contractor will obtain copies directly from publication source.
4. Trade Association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean association names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AAMA	American Architectural Manufacturers Association	Schaumburg	IL	(847) 303-5664	www.aamanet.org
AAMA	American Architectural Manufacturers Association	Schamumburg	IL	(847) 303-5774	www.aamanet.org

AIA	American Institution of Architects	Washington	DC	(202) 626-7300	www.aia.org
AISC	American Institute of Steel Construction	Chicago	IL	(312) 670-2400	www.aisc.org
AISI	American Iron & Steel Institute	Washington	DC	(202) 452-7100	www.steel.org
ANSI	American National Standards Institute	New York	NY	(212) 642-4900	www.ansi.org
APA	APA-Engineered Wood Association	Tacoma	WA	(253) 565-6600	www.apawood.org
API	American Petroleum Institute	Washington	DC	(202) 682-8000	www.api.org
AQMD	South Coast Air Quality Management District	Diamond Bar	CA	(909) 396-2000	www.aqmd.gov
ASTM	ASTM International	West Conshohocken	PA	(610) 832-9500	www.astm.org
ICC	International Code Council	Washington	DC	(888) 422-7233	www.iccsafe.org
ICC-ES	ICC Evaluation Service	Whittier	CA	(562) 699-0543	www.icc-es.org
ICBO	International Conference of Building Officials				(See ICC)
ISO	International Organization for Standardization	Geneva, Switzerland			www.iso.org
NAAMM	National Association of Architectural Metal Manufacturers	Glen Ellyn	IL	(630) 942-6591	www.naamm.org
NFPA	National Fire Protection Association	Quincy	MA	(800) 344-3555	www.nfpa.org
NFRC	National Fenestration Rating Council	Greenbelt	MD	(301) 589-1776	www.nfrc.org
NSF	NSF International	Ann Arbor	MI	(734) 769-8010	www.nsf.org
SDI	Steel Deck Institute	Fox River Grove	IL	(847) 458-4647	www.sdi.org
SMACNA	Sheet Metal & Air Conditioning Contractors National Association	Chantilly	VA	(703) 803-2980	www.smacna.org
UL	Underwriters Laboratories	Camas	WA	(877) 854-3577	www.ul.com

D. Federal Government Agencies:

- Names and titles of federal government standard or specification producing agencies are often abbreviated. Following acronyms or abbreviations referenced in Contract Documents represent names of standard or specification producing agencies of federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

CS	Commercial Standard (U S Department of Commerce)	Washington	DC	(202) 512-0000	www.doc.gov
EPA	Environmental Protection Agency	Washington	DC	(202) 272-0167	www.epa.gov
FCC	Federal Communications Commission	Washington	DC	(888) 225-5322	www.fcc.gov
FS	Federal Specifications Unit (Available from GSA)	Washington	DC	(202) 619-8925	www.gsa.gov
MIL	Military Standardization Documents (U S Department of Defense)	Philadelphia	PA	(215) 697-2179	www.dod.gov
NIST	National Institute of Standards and Technology, technology Administration (US Department of Commerce)	Gaithersburg	MD	(301) 975-4500	www.ts.nist.gov

OSHA	Occupational Safety & Health Administration (U S Department of Labor)	Washington	DC	202) 219-8148	www.osha.gov
PS	Product Standard of NBS (U S Department of Commerce)	Washington	DC	(202) 512-1800	www.doc.gov

E. Governing Regulations / Authorities:

1. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.
2. Obtain copies of regulations required to be retained at Project Site, available for reference by parties who have a reasonable need for such reference.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

SECTION 01 4301**QUALITY ASSURANCE - QUALIFICATIONS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Related Documents:
 - 1. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Requirements:
 - 1. Section 01 4000: 'Quality Requirements' includes administrative and procedural requirements for quality assurance and quality control.

1.2 REFERENCES

- A. Definitions:
 - 1. Accreditation: Process in which certification of competency, authority, or credibility is presented. Verify that laboratories have an appropriate quality management system and can properly perform certain test methods (e.g., ANSI, ASTM, and ISO test methods) and calibration parameters according to their scopes of accreditation.
 - 2. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
 - 3. Testing Agency: Entity engaged to perform specific tests, inspections, or both.
 - 4. Testing Agency Laboratory: Agency or firm qualified to perform field and laboratory tests to determine characteristics and quality of materials and workmanship.
- B. Reference Standards:
 - 1. ASTM International:
 - a. ASTM E329-11a, 'Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.'

1.3 QUALIFICATIONS

- A. Qualifications: Qualifications paragraphs in this Article establish minimum qualification levels required; individual Specification Sections specify additional requirements:
 - 1. Fabricator / Supplier / Installer Qualifications: Firm experienced in producing products similar to those indicated for this Project and with record of successful in-service performance, as well as sufficient production capacity to produce required units.
 - a. Approved:
 - 1) Where heading '*Approved Suppliers / Distributors / Installers / Applicators / Fabricators*' is used to identify list of specified suppliers / distributors / installers / applicators / fabricators, use only listed suppliers / installers / fabricators.
 - 2) No substitutions will be allowed.
 - 2. Factory-Authorized Service Representative Qualifications:
 - a. Authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

3. Installer Qualifications:
 - a. Firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
4. Manufacturer Qualifications:
 - a. Firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
5. Manufacturer's Field Services Qualifications:
 - a. Experienced authorized representative of manufacturer to inspect field-assembled components and equipment installation, including service connections.
6. Professional Engineer Qualifications:
 - a. Professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of kind indicated. Engineering services are defined as those performed for installations of system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
7. Specialists:
 - a. Certain sections of Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations.
 - b. Specialists shall satisfy qualification requirements indicated and shall be engaged for activities indicated.
 - c. Requirement for specialists shall not supersede building codes and regulations governing the Work.
8. Testing Agency Qualifications:
 - a. Independent Testing Agency with experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1) Testing Laboratory:
 - a) AASHTO Materials Reference Laboratory (AMRL) Accreditation Program.
 - b) Cement and Concrete Reference Laboratory (CCRL).
 - c) Nationally Recognized Testing Laboratory (NRTL): Nationally recognized testing laboratory according to 29 CFR 1910.7.
 - d) National Voluntary Laboratory (NVLAP): Testing Agency accredited according to National Institute of Standards and Technology (NIST) Technology Administration, U. S. Department of Commerce Accreditation Program.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 5200

CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Construction Facilities.

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Prepare schedule indicating dates for implementation and termination of each temporary facility.
- B. Keep facilities clean and neat in appearance. Operate in safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or allow them to interfere with progress of The Work. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on Project site.
- C. Maintain facilities in good operating condition until removal.
- D. Remove each temporary facility when need has ended, or when replaced by authorized use of permanent facility, or by Substantial Completion. Complete permanent construction that may have been delayed because of interference with temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that make up temporary facilities are property of Contractor.
 - 2. By Substantial Completion, clean and renovate permanent facilities used during construction period.

1.3 SANITARY FACILITIES

- A. Provide temporary sanitary toilet. Service and maintain temporary toilet in a clean, sanitary condition. Use of existing restroom facilities will not be allowed.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 5400

CONSTRUCTION AIDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Construction Aids.

1.2 SCAFFOLDING, PLATFORMS, STAIRS, ETC

- A. Furnish and maintain equipment such as temporary stairs, ladders, ramps, platforms, scaffolds, hoists, runways, derricks, chutes, and elevators as required for proper execution of The Work.
- B. Apparatus, equipment, and construction shall meet requirements of applicable laws and safety regulations.
- C. Protect walls, floors and ceilings of path of travel to work area during construction.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 5600

TEMPORARY BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Temporary Barriers and Enclosures.

1.2 GENERAL

- A. Protection Of Existing Improvements: Protect wall, door, ceilings, carpet, etc. including overhead protection where required. Repair damage to existing improvements caused by construction activities.
- B. Protection Of Adjacent Property: Provide necessary protection for adjacent spaces and lateral support thereof.

1.3 TEMPORARY DUST BARRIERS

- A. The Contractor shall provide any and all dust control barriers required.

1.4 TEMPORARY NOISE BARRIERS

- A. The Contractor shall use only such equipment on the work and in such state of repair that the emission of sound there from is within the noise tolerance level of that equipment as established by Cal-OSHA.

1.5 TEMPORARY BARRICADES

- A. Comply with standards and code requirements in erecting barricades, warning signs, and lights.
- B. Take necessary precautions to protect persons, including members of the public, from injury or harm.

1.6 TEMPORARY SECURITY BARRIERS

- A. Install temporary enclosures of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft, and other violations of security.
- B. Secure materials and equipment stored on site.
- C. Maintain building security until Substantial Completion.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 6100**COMMON PRODUCT REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Common Product Requirements.

1.2 GENERAL

- A. Provide products that comply with Contract Documents, that are undamaged, and, unless otherwise indicated, new and unused at time of installation. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.
- B. Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on surfaces of products that will be exposed to view in occupied spaces or on building exterior.
1. Locate required product labels and stamps on concealed surface or, where required for observation after installation, on accessible surface that is not conspicuous.
 2. Provide permanent nameplates on items of service-connected or power-operated equipment. Locate on easily accessible surface that is inconspicuous in occupied spaces. Nameplate will contain following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
- C. Where specifications describe a product or assembly by specifying exact characteristics required, with or without use of brand or trade name, provide product or assembly that provides specified characteristics and otherwise complies with Contract requirements.
- D. Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by manufacturer for application described. General overall performance of product is implied where product is specified for specific application. Manufacturer's recommendations may be contained in published product literature, or by manufacturer's certification of performance.
- E. Where specifications only require compliance with an imposed code, standard, or regulation, select product that complies with standards, codes or regulations specified.
- F. Where Specifications require matching an established Sample, Architect's decision will be final on whether proposed product matches satisfactorily. Where no product available within specified category matches satisfactorily nor complies with other specified requirements, refer to Architect.
- G. Where specified product requirements include phrase ` . . . as selected from manufacturer's standard colors, patterns, textures . . . ' or similar phrase, select product and manufacturer that comply with other specified requirements. Architect will select color, pattern, and texture from product line selected.

- H. Remove and replace products and materials not specified in Contract Documents but installed in the Work with specified products and materials at no additional cost to Owner and for no increase in Contract time.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 6200
PRODUCT OPTIONS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
1. Administrative and procedural requirements for Product Options.

1.2 GENERAL

- A. Product Selection:
1. When option of selecting between two or more products is given, product selected will be compatible with products previously selected, even if previously selected products were also options.
- B. Non-Conforming Work:
1. Non-conforming work as covered in General Conditions applies, but is not limited, to use of non-specified products or manufacturers.
- C. Product selection is governed by Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include:
1. Substitutions And Equal Products:
 - a. Generally speaking, substitutions for specified products and systems, as defined in the Uniform Commercial Code, are not acceptable. However, equal products may be approved upon compliance with Contract Document requirements.
 - b. Acceptable Products / Manufacturers / Suppliers / Installers:
 - 1) Use specified products / manufacturers unless approval to use other products / manufacturers has been obtained from Architect by Addendum.
 - 2) Use 'Equal Product Approval Request Form' to request approval of equal products, manufacturers, or suppliers before bidding or before installation, as noted in individual Sections.
 - c. Quality / Performance Standard Products / Manufacturers:
 - 1) Use specified product / manufacturer or equal product from specified manufacturers only.
 - 2) Products / manufacturers used shall conform to Contract Document requirements.

PART 2 - PRODUCTS Not Used**PART 3 - EXECUTION Not Used****END OF SECTION**

SECTION 01 6600

PRODUCT DELIVERY, STORAGE, AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Product Delivery, Storage, and Handling Requirements.

1.2 GENERAL

- A. Deliver, store, and handle products according to manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1.3 DELIVERY AND ACCEPTANCE REQUIREMENTS

- A. Schedule delivery to reduce long-term storage at site and to prevent overcrowding of construction spaces.
- B. 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.
- C. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- D. Inspect products upon delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.

1.4 STORAGE AND HANDLING REQUIREMENTS

- A. Store products at site in manner that will simplify inspection and measurement of quantity or counting of units.
- B. Store heavy materials away from Project structure so supporting construction will not be endangered.
- C. Store products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 7300

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for governing Execution of the Work.

1.2 COMMON INSTALLATION PROVISIONS

- A. Manufacturer's Instructions: Comply with Manufacturer's installation instructions and recommendations to extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents. Notify Architect of conflicts between Manufacturer's installation instructions and Contract Document requirements.
- B. Provide attachment and connection devices and methods necessary for securing Work. Secure work true to line and level. Anchor each product securely in place, accurately located, and aligned with other Work. Allow for expansion and building movement.
- C. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain best visual effect. Refer questionable choices to Architect for final decision.
- D. Install each component during weather conditions and Project status that will ensure best possible results. Isolate each part of completed construction from incompatible material as necessary to prevent deterioration.
- E. Mounting Heights: Where mounting heights are not shown, install individual components at standard mounting heights recognized within the industry or local codes for that application. Refer questionable mounting height decisions to Architect for final decision.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 7400**CLEANING AND WASTE MANAGEMENT****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Administrative and procedural requirements for Cleaning and Waste Management as described in Contract Documents.
 2. Administrative and procedural requirements for Cleaning, Salvaging, Recycling and Disposing of Construction Waste as described in Contract Documents.

1.2 REFERENCES

- A. Definitions:
1. Asphalt Pavement, Brick, and Concrete (ABC) Rubble: Rubble that contains only weathered (cured) asphalt pavement, clay bricks and attached mortar normally used in construction, or concrete that may contain rebar. The rubble shall not be mixed with, or contaminated by, another waste or debris.
 2. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
 3. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
 4. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
 5. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- B. Reference Standards:
1. ASTM International:
 - a. ASTM E1609-01, 'Standard Guide for Development and Implementation of a Pollution Prevention Program.'

1.3 PERFORMANCE REQUIREMENTS

- A. General:
1. Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work.
 2. Practice efficient waste management in the use of materials in the course of the Work.
 3. Use all reasonable means to divert construction and demolition waste from landfills and incinerators.

1.4 SUBMITTALS

- A. Action Submittals:
1. Waste Reduction Progress Reports:
 - a. Submit plan within 10 days of date established for the Notice to Proceed.
- B. Informational Submittals:
1. Waste Management Progress Reports:
 - a. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:

- 1) Material category.
 - 2) Generation point of waste.
 - 3) Total quantity of waste in tons (tonnes).
 - 4) Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 - 5) Quantity of waste recycled, both estimated and actual in tons (tonnes).
 - 6) Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 - 7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- b. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- c. Records of Donations:
- 1) Indicate receipt and acceptance of salvageable waste donated to individuals and organizations.
 - 2) Indicate whether organization is tax exempt.
- d. Records of Sales:
- 1) Indicate receipt and acceptance of salvageable waste sold to individuals and organizations.
 - 2) Indicate whether organization is tax exempt.
- e. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- f. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.5 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
1. Comply with hauling and disposal regulations of authorities having jurisdiction (AHJ).
- B. Qualifications:
1. Waste Management Coordinator Qualifications:
 - a. Experienced firm, with a record of successful sustainable waste management coordination of Projects with similar requirements.

1.6 WASTE MANAGEMENT PLAN

- A. General:
1. Develop a waste management plan according to ASTM E1609 and requirements of this Section.
 2. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis.
 3. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification:
1. Indicate anticipated types and quantities of demolition site-clearing and construction waste generated by the Work.
 2. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan:
1. List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - a. Disposed Materials:

- 1) Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
- b. Handling and Transportation Procedures:
 - 1) Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- c. Recycled Materials:
 - 1) Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
- d. Salvaged Materials for Donation:
 - 1) For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
- e. Salvaged Materials for Reuse:
 - 1) For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
- f. Salvaged Materials for Sale:
 - 1) For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
2. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
 - a. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 - b. Handling and transportation costs. Include cost of collection containers for each type of waste.
 - c. Net additional cost or net savings from waste management plan.
 - d. Revenue from salvaged materials.
 - e. Revenue from recycled materials.
 - f. Savings in hauling and tipping fees by donating materials.
 - g. Savings in hauling and tipping fees that are avoided.
 - h. Total cost of disposal (with no waste management).
 - i. Total quantity of waste.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION:

- A. General:
 1. Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract:
 - a. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Training:
 1. Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site:
 - a. Distribute waste management plan to everyone concerned within five (5) days of submittal return.
 - b. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

- C. Site Access and Temporary Controls:
 - 1. Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities:
 - a. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - b. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 DISPOSAL OF WASTE

- A. General:
 - 1. Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - a. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - b. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning:
 - 1. Do not burn waste materials.
- C. Disposal:
 - 1. Transport waste materials off Owner's property and legally dispose of them.
- D. Landfill Receipts:
 - 1. Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

3.3 PROGRESS CLEANING

- A. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
- B. Keep premises broom clean during progress of the Work.
- C. Keep site and adjoining streets reasonably clean. If necessary, sprinkle rubbish and debris with water to suppress dust.
- D. During handling and installation, protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from soiling, damage, or deterioration until Substantial Completion.
- E. Clean and maintain completed construction as frequently as necessary throughout construction period. Adjust and lubricate operable components to ensure ability to operate without damaging effects.
- F. Supervise construction activities to ensure that no part of construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.
- G. Before and during application of painting materials, clear area where such work is in progress of debris, rubbish, and building materials that may cause dust. Sweep floors and vacuum as required and take all possible steps to keep area dust free.
- H. Clean exposed surfaces and protect as necessary to avoid damage and deterioration.

- I. Place extra materials of value remaining after completion of associated work have become Owner's property as directed by Owner or Architect.
- J. Construction Waste Management And Disposal:
 - 1. Remove waste materials and rubbish caused by employees, Subcontractors, and contractors under separate contract with Owner and dispose of legally. Remove unsuitable or damaged materials and debris from building and from property.
 - a. Provide adequate waste receptacles and dispose of materials when full.
 - b. Properly store volatile waste and remove daily.
 - c. Do not deposit waste into storm drains, sanitary sewers, streams, or waterways. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
 - 2. Do not burn waste materials or build fires on site. Do not bury debris or excess materials on Owner's property.

3.4 FINAL CLEANING

- A. Immediately before Substantial Completion, thoroughly clean building and area where The Work was performed. Remove all rubbish from under and about building, landscaped areas and parking lot and leave building and Project Site ready for occupancy by Owner.
- B. Comply with individual manufacturer's cleaning instructions.
- C. Clean each surface or unit to condition expected in normal, commercial building cleaning and maintenance program, including but not limited to:
 - 1. Interior Cleaning:
 - a. Clean inside glazing, exercising care not to scratch glass.
 - b. Remove marks, stains, fingerprints and dirt.
 - c. Clean and polish woodwork and finish hardware.
 - d. Remove labels that are not permanent labels.
 - e. Clean plumbing fixtures and tile work. Remove spots, soil or paint.
 - f. Clean surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean light fixtures and lamps.
 - g. Clean other fixtures and equipment and remove stains, paint, dirt, and dust.
 - h. Remove temporary floor protection and clean floors.
 - 2. Exterior Cleaning:
 - a. Clean outside glazing, exercising care not to scratch glass.
 - b. Remove marks, stains, and dirt from exterior surfaces.
 - c. Clean and polish finish hardware.
 - d. Remove temporary protection systems.
 - e. Clean dirt, mud, and other foreign material from paving, sidewalks, and gutters.
 - f. Clean drop inlets, through-curb drains, and other drainage structures.
 - g. Remove trash, debris, and foreign material from landscaped areas.

END OF SECTION

SECTION 01 7700**CLOSEOUT PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Closeout Procedures.

1.2 GENERAL

- A. Schedule closeout procedures in the two weeks before expiration of Contract Time. Weeks will be marked by Owner and Architect's weekly before Final Closeout Review, Final Closeout Review, and expiration of Contract Time.
- B. Date of Substantial Completion shall fall within week between Owner and Architect's final weekly visit and Final Closeout Review. Date of Substantial Completion shall not occur until Construction Schedule shows completion of construction work, unless agreed to by Owner and Architect and included on Certificate of Substantial Completion.

1.3 PRELIMINARY CLOSEOUT REVIEWS

- A. Confirm with Owner and Architect when Substantial Completion of The Work will be achieved.
 - 1. Final Architect's weekly visits will serve as Preliminary Closeout Reviews to determine if Final Closeout Review will occur as scheduled and that Substantial Completion of the Work will be achieved by that date.
 - 2. By final weekly Architect visit, notify Owner and Architect of date when Substantial Completion of The Work will be achieved.
- B. Arrange with Architect date for Final Closeout Review to confirm Substantial Completion.

1.4 CLOSEOUT REQUIREMENTS

- A. Before Final Closeout Review:
 - 1. Deliver Closeout Submittals to Architect.
 - 2. Deliver tools, spare parts, extra stock, and similar items as required by the Contract Documents.
 - 3. Complete start-up testing of systems, and instruction of Owner's maintenance personnel as required by the Contract Documents.
 - 4. Discontinue or change over and remove temporary facilities from site, along with construction tools, mock-ups, and similar elements.
 - 5. Complete final cleaning requirements.

1.5 FINAL CLOSEOUT REVIEW

- A. Participate in Final Closeout Review.

- B. When Owner and Architect have confirmed that Contractor has achieved Substantial Completion of The Work, Owner, Architect, and Contractor will execute Certificate of Substantial Completion that contains:
1. Date of Substantial Completion.
 2. Punch List of Work not yet accepted.
 3. Amount to be withheld for completion of Punch List work.
 4. Time period for completion of Punch List work.
 5. Amount of liquidated damages set forth in Supplementary Conditions to be assessed if Contractor fails to complete Punch List work within time set forth in Certificate.
- C. Final Acceptance Conference:
1. Notify Architect in writing when work on Punch List has been completed.
 2. Arrange with Architect date and time for Final Acceptance Conference.
 3. When Owner and Architect have confirmed that Contractor has completed Punch List work, Architect will issue letter to Owner authorizing final payment.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

SECTION 01 7800**CLOSEOUT SUBMITTALS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes But is Not Limited To:
 - 1. Administrative and procedural requirements for Closeout Submittals.

1.2 GENERAL

- A. Workmanship bonds, final certifications, equipment check-out sheets, and similar documents.
- B. Releases enabling Owner unrestricted use of The Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
- C. Project photographs, damage or settlement survey, and similar record information required by Contract Documents.

1.3 OPERATIONS AND MAINTENANCE DATA

- A. Operations And Maintenance Manuals that include:
 - 1. Copy of complete Project Manual including Addenda, Modifications as defined in General Conditions, and other interpretations issued during construction.
 - a. Mark these documents to show variations in actual Work performed in comparison with text of specifications and Modifications. Show substitutions, selection of options, and similar information, particularly on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
 - b. Note related record drawing information and Product Data.
 - 2. Operations and maintenance submittals required by Contract Documents.
 - 3. Certifications required by Contract Documents.
 - 4. Copies of warranties required by Contract Documents.
 - 5. Testing and Inspection Reports required by Contract Documents.

1.4 WARRANTIES

- A. When written guarantees beyond one year after substantial completion are required by Contract Documents, secure such guarantees and warranties properly addressed and signed in favor of Owner. Include these documents in Operations & Maintenance Manuals specified above.
- B. Delivery of guarantees and warranties will not relieve Contractor from obligations assumed under other provisions of Contract Documents.

1.5 PROJECT RECORD DOCUMENTS

- A. Do not use record documents for construction purposes. Protect from deterioration and loss in secure, fire-resistive location. Provide access to record documents for Architect's reference during normal working hours.

- B. Maintain clean, undamaged set of Drawings. Mark set to show actual installation where installation varies from the Work as originally shown. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to Owner, but was not shown on Drawings.
 3. Note related Change Order numbers where applicable.

1.6 SPARE PARTS

- A. Provide items that are indicated in individual Sections.

1.7 EXTRA STOCK MATERIALS

- A. Provide items that are indicated in individual Sections.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION Not Used

END OF SECTION

DIVISION 02: EXISTING CONDITIONS

02 4000 DEMOLITION AND STRUCTURE MOVING

02 4119 SELECTIVE STRUCTURE DEMOLITION

END OF TABLE OF CONTENTS

NOT FOR BID

SECTION 02 4119**SELECTIVE STRUCTURE DEMOLITION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused.
- B. Reference Standards:
 - 1. National Fire Protection Association / American National Standards Institute:
 - a. NFPA 241, 'Standard for Safeguarding Construction, Alteration, and Demolition Operations', 2009 Edition.
 - 2. American National Standards Institute / American Society of Safety Engineers:
 - a. ANSI / ASSE A10.6-2006, 'Safety Requirements for Demolition Operations.'

1.2 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Storage of removed items or materials will not be permitted on-site.
- B. Scheduling:
 - 1. Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, on Schedule specified in Section 01 3200.

1.3 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approvals:
 - 1. Comply with governing EPA notification regulations before beginning selective demolition.
 - 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 3. Standards: Comply with ANSI A10.6 and NFPA 241.

1.4 FIELD CONDITIONS

- A. Existing Conditions:
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. The Contractor shall examine the various Drawings, visit the site, determine the extent of the Work, the extent of work affected therein, and all conditions under which he is required to perform the various operations.

PART 2 - PRODUCTS: Not Used**PART 3 - EXECUTION****3.1 EXAMINATION****A. Verification Of Conditions:**

1. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - a. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

B. Evaluation And Assessment:

1. Hazardous Materials:
 - a. It is not expected that hazardous materials will be encountered in the Work. Identified hazardous materials will be removed by Owner before start of the Work.
 - b. If materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify Architect.
2. Inventory and record condition of items to be removed and reinstalled.
3. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure nature and extent of conflict. Promptly submit written report to Architect.
4. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION**A. Temporary Facilities:**

1. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
2. Maintain fire-protection facilities in service during selective demolition operations.

3.3 SELECTIVE DEMOLITION**A. General:**

1. Conduct selective demolition and debris-removal operations to ensure minimum interference with adjacent occupied and used facilities.
2. Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - a. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - b. Conduct operations to minimize damage by falling debris or other causes to adjacent buildings, structures, roadways, other facilities, and persons.
 - c. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - d. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - e. Dispose of demolished items and materials promptly.

- B. Existing Items to Remain:
 - 1. Protect construction indicated to remain against damage and soiling during selective demolition.
 - 2. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition,
 - 3. Protect in place the utility service, fence, tree, or device during the prosecution of the demolition work as specified.
 - 4. Where indicated on the Drawings, the designated facilities shall remain intact and in service during the prosecution of the demolition work.
- C. Damage:
 - 1. Promptly repair damage caused to adjacent facilities by demolition operations as directed by the County at no cost to the County.

3.4 TRAFFIC AND ACCESS

- A. Conduct work to ensure minimum interference with on-site and off-site roads, streets, sidewalks, and occupied or used facilities.
- B. Do not close or obstruct streets, sidewalks, or other occupied or used facilities without permission from the County. Provide alternate routes around closed or obstructed traffic in access ways.
- C. Coordinate truck routing and timing with County.

3.5 CLEANING

- A. General:
 - 1. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.
 - 2. Return adjacent areas to condition existing before selective demolition operations began.
- B. Waste Management:
 - 1. All material, equipment, rubble, debris, and other products of the demolition shall become the property of the Contractor for his disposal off-site in accordance with all applicable laws and ordinances at the Contractor's expense.
 - 2. Disposal of Demolished Materials:
 - a. Remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill. Do not burn demolished materials.
 - 1) Do not allow demolished materials to accumulate on-site.
 - 2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3) Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

END OF SECTION

DIVISION 07: THERMAL AND MOISTURE PROTECTION

07 5000 MEMBRANE ROOFING

07 5430 ADHERED THERMOPLASTIC (PVC) FELT BACK MEMBRANE ROOFING
07 5600 FLUID-APPLIED WATERPROOFING (INTEGRAL GUTTERS)

07 7000 FLASHING AND SHEET METAL

07 7113 MANUFACTURED COPING

END OF TABLE OF CONTENTS

SECTION 07543

ADHERED THERMOPLASTIC (PVC) MEMBRANE ROOFING

PART 1 – GENERAL CONDITIONS

1.1 DESCRIPTION

A. Summary:

Install an adhered thermoplastic (PVC) membrane roof system, including, but not limited to, tapered polyisocyanurate roof insulation, primed gypsum barrier board, PVC membrane flashings, PVC metal edge/fascia flashing, and other components to comprise a weathertight roof system. The roof system shall comply with the herein specified roofing manufacturer's standard written and detail requirements. Note: Sika Sarnafil products and system installation requirements have been utilized as the basis of design for this project.

B. System Description:

1. Remove and dispose of existing roof system; including all vertical flashings and perimeter sheet metal edge flashings, counter-flashings and copings down to the primary substrate and/or roof deck. All removal, hauling, and disposal procedures must be performed by a certified contractor and must meet or exceed all applicable Local and State requirements.
2. As applicable, remove asbestos containing materials (ACM) present in those components and areas of the building subject to the work of this project. The scope of the asbestos removal work shall be as required to comply with Local, State, and Federal regulations and standards. The Applicator shall obtain and pay for all licenses and permits associated with all asbestos work. The Applicator shall provide to the Owner's Representative copies of all permits, certificates, and other related documents pertaining to the asbestos removal work.
3. Over the properly prepared roof deck, install tapered polyisocyanurate roof insulation (1/4" per foot primary slope) and a single layer of 1/4" thick pre-primed gypsum cover board with fiberglass mat facer. The tapered insulation and cover board shall be installed directly over the roof deck and shall be secured using Factory Mutual and manufacturer approved low-rise foam insulation board adhesive at a field attachment rate not less than 12" on-center 1/4" to 1/2" bead ribbon spacing per 4'x8' board. Perimeter and corner attachment rates must be increased in accordance with Factory Mutual Data Sheets 1-28/29 requirements.
4. Install a layer of 60-mil thermoplastic (PVC) feltback membrane (EnergySmart White). The membrane shall be installed directly over the gypsum cover board and shall be adhered using VOC compliant, water-based adhesive. The membrane shall meet or exceed Cool Roof Rating Council (CRRRC) requirements for Title 24 compliance.
5. Install a new ACQ (Alkaline Copper Quaternary) treated wood nailer at top of parapet wall in accordance with local building code and Sika Sarnafil's requirements. Note: Use Sarnafasteners-ACQ (#14 stainless steel fasteners with grey spex overcoat) for PVC-coated metal and/or galvanized metal cleat attachment.

6. Install new new PVC clad drip edge flashing at top outside edge of parapet walls. Edge flashing shall be secured to the wood nailer using approved fastener screws at a spacing of six-inch (6") on-center, staggered. Install a continuous metal cleat (hook strip) and PVC membrane coverstrip in accordance with the Roofing Manufacturer's standard written and detail requirements. Face dimension of drip edge flashing shall be no less than 4.0" with an open hemmed bottom to receive the continuous metal hook strip. PVC clad metal shall be "Tan".
7. At removable fan vent curbs, install adhered 60-mil "asphalt-oil" resistant flashing membrane. Flashing membrane to be adhered to the properly prepared vertical substrate with approved flashing adhesive and carried up, over the top and down one and a half inches (1.5") on inside of existing curb. Membrane shall be fastened 12" on center at inside of curb. Reinstall equipment to top of curb set in approved urethane sealant and secure to curb using increased diameter, metal-capped grommets fasteners at a spacing of eight inches (8") on-center. Where possible, use existing fastener holes when installing new fasteners. Seal any exposed fastener holes using approved urethane sealant.
8. Existing piping support sleepers to receive new adhered "asphalt-oil" resistance flashing membrane encapsulating existing sleepers. New 22-gauge GSM caps to replace existing caps. Existing steel attachment brackets, unistrut and pipe straps to be reused. Re-secure the attachment brackets over the new GSM caps with new increased diameter lag bolts set in sealant at face of new caps.
9. All open (soil, vent, etc.) pipes shall be flashed utilizing "Vent Stack" detail with PVC membrane cap as indicated. Note: The use of clamps for membrane termination will not be accepted at open (non-connected) pipes.
10. All connected (conduit, gas, etc.) pipes will be flashed utilizing PVC flashing membrane with 60 mil fiberglass reinforced PVC membrane storm collar.
11. Replace all existing roof drain clamping ring bolts, clamping rings and debris strainers with new matching components. Existing drain bowl flange shall be thoroughly cleaned prior to reinstalling PVC flashing membrane and sealant. All primary and overflow roof drains to receive new asphalt/oil resistant flashing membrane target with one full tube of manufacturer approved urethane sealant between the new flashing membrane and drain bowl receiver flange. Flashing membrane target shall be hot-air welded to roof membrane and installed in accordance with manufacturer's "Clamping Ring Drain" flashing and as indicated.
12. At all inside and outside corner locations, install prefabricated membrane flashings only.
13. At all rooftop electrical conduit, condensate piping, gas piping, etc., install new, prefabricated thermoplastic pipe supports as manufactured by Miro Industries "Pillow Block" or "Strut Series" as required, (or pre-approved equal). The pipe supports shall be positioned at a maximum spacing as required allowing for continuous four inch (4") minimum clearance above the finished roof surface and/or matching the existing piping elevations. Properly secure the conduit/piping to the pipe support using approved metal straps.

14. Perform all flashing and detail work in strict accordance with the roofing manufacturer's standard written and detail requirements (as indicated within the project detail drawings and/or specification requirements, those specific project requirements shall supersede any corresponding minimum/standard requirements)

A. Work Included:

The work includes but is not necessarily limited to the installation of:

1. Existing Roof Removal
2. Substrate Preparation.
3. Tapered Roof Insulation & Gypsum Cover Board.
4. Low-Rise Foam Board Adhesive
5. Flashing Membrane Adhesive.
6. Roof Membrane Adhesive.
7. Thermoplastic (PVC) Feltback Roof Membrane.
8. Thermoplastic (PVC) Flashing Membrane.
9. Metal Flashings.
10. Sealants.
11. Roof Drains.

1.2 QUALITY ASSURANCE

- A. Request for Information (RFI): To resolve conflicts or lack of definition that may create construction problems, Bidders for the Work of Section 07543 shall submit a written RFI to Owners Representative at least 14 days before Bids are due for any conflicts or omissions regarding the Work of this Section should they exist.
- B. Pre-Roofing Conference and Inspection: After approval of submittals but prior to beginning installation of Work of this Section, the Owner's Representative shall hold a meeting at the site attended by the Roofing Applicator, related Subcontractors, and the Roofing Material Manufacturer to describe in detail the roof system(s) to be installed and to establish agreement, coordination, and responsibilities among the involved trades.
- C. The roofing system shall be applied only by an Applicator authorized by the specified Roofing Manufacturer prior to bid. The Applicator shall have a minimum of five (5) years documented experience with the Roofing Manufacturer. The Owner's Representative reserves the right to request a list of reference projects to verify Applicator's performance/work history. All references must be of similar size and scope, and must be within 100 miles of this project.
- D. The Roofing Manufacturer shall have directly produced the specified field and flashing membranes for the number of years equal to, or greater than that of the warranty term (20 years). The membrane shall have also maintained a consistent base formulation for the same number of years.
- E. The Roofing Manufacturer shall have a *Sustainable Product Certification* conforming to the requirements of *NSF/ANSI 347 – Sustainability Assessment for Single Ply Roofing Membranes*. Minimum certification level established for this project is: *Platinum*.

- F. Use only a Manufacturer who has initiated a post consumer recycling program and can demonstrate a minimum of five projects where the existing PVC membrane has been removed and recycled into new roofing membrane or PVC components.
- G. Membrane Manufacturer must have *Recycled Content Certification* from UL (Underwriters Laboratories) Environment.
- H. Membrane thickness stated in this document refers to waterproofing membrane PVC polymer thickness. This is a non-negotiable minimum requirement.
- I. Unreinforced or polyester reinforced membranes are prohibited.
- J. Re-labeled / re-packaged ("Private-labeled") primary and flashing membranes will not be accepted.
- K. Membrane Manufacturer must have ISO 14001 Certification and a Responsible Care Program in-place with current good standing status.
- L. Membrane Manufacturer must not require the use of membrane cut edge sealant at any location. This is a maintenance item that the Owner does not accept.
- M. The Manufacturer shall provide interim and final roof inspection from a directly employed dedicated team of experienced inspectors. Sales personnel may not be used for onsite inspection of installations.

1.3 PRE-INSTALLATION MEETING

- A. Arrange for a Pre-Installation Meeting between the Applicator, Owner's Representative, Roofing Manufacturer's Representative, and related trades to be held at least two (2) weeks prior to the beginning of roof system installation.
- B. Review contract documents, manufacturer's instructions, project conditions, and proposed methods and procedures related to installation.
 - 1. Identify conditions that would be detrimental to proper installation.
 - 2. Review special details, corner conditions, drainage patterns, penetrations and similar conditions of adjacent construction that will affect or impact surface preparation and installation operations.
 - 3. Review substrates and surfaces to receive materials in order to verify compliance with specified requirements, and with manufacturer's substrate tolerance recommendations and surface preparation requirements, including flatness, levelness, damage and imperfections, and quality of attachment to structure.
 - 4. Review limitations of floor and roof decks for structural loading both during and after installation.
- C. Review governing regulations and specified requirements for certificates, inspection, reports and closeout submittals.

- D. Review sequence of installation, finalize construction schedule, and verify availability of materials, installer's personnel, equipment and facilities necessary to make progress and avoid delays.
- E. Review temporary protection procedures required to be followed to provide protection of stored and installed products and accessories both during and after installation.
- F. Owner's Representative shall record significant meeting discussions, agreements and disagreements, including required corrective measures and actions to be taken before work begins. Distribute copy of minutes to Owner's Authorized Representative, to each party present, and to parties who should have been present no later than 3 business days following the meeting.
- G. Do not proceed with installation until all attendees, including all parties who should have been present, provide written acknowledgement of receipt and agreement to the conditions and requirements as described in the "Meeting Minutes". If disagreements cannot be successfully resolved, initiate necessary actions to remove impediments to execution of the Work and reconvene meeting at earliest available date to resolve outstanding disagreements.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.
- C. The applicator shall submit evidence that the proposed roof system meets local building code requirements and has been tested and approved or listed by the following test organizations.
 - 1. ASCE/SEI 7 and SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems".
 - a. Corner Design Uplift Pressure: 180 lbs. / Ft²
 - b. Perimeter Design Uplift Pressure: 120 lbs. / Ft²
 - c. Field-of-Roof Design Uplift Pressure: 90 lbs. / Ft²
 - d. Safety Factor 2.0
 - 2. Underwriters Laboratories, Inc.: Class A assembly
- D. Energy Performance:

Low-Slope Roofs: Provide roof system with an initial Solar Reflectance Index (SRI) of not less than 100 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency. Roof membrane (not post installation applied finish) shall comply with current California Title 24 Part 6 minimum 3-year aged solar reflectance of 0.63 and a minimum thermal emittance of 0.75 requirements.

1.5 SUBMITTALS:

A. Submittals with bid (utilizing the base specified system: Sika Sarnafil)

1. A list of each primary component to be used in the roof system and the Manufacturer's current literature for each component.
2. Shop Drawing indicating Tapered Insulation Layout with attachment rates.
3. Sample copy of Roofing Manufacturer's warranty.
4. Sample copy of Contractor's warranty.
5. Letter from Roofing Manufacturer confirming that the Contractor is an authorized applicator of the specified roof system.

B. Submittals of equals

Submit proposed equals to be considered for use on this project no less than fifteen (15) days prior to bid date. Proposed roof systems which have been reviewed and accepted will be listed in an addendum prior to bid date; only then will roof systems be accepted at bidding. All below referenced letters must be original, wet-ink signed by the proposed Roofing Manufacturer's Technical Director/Manager. Submittals shall include the following:

1. Two 12 inch x 12 inch membrane samples and two samples of each component to be used in the roofing system.
2. Manufacturer's specification matching the herein specified requirements for all Sub-Sections as described. The Manufacturer shall also provide written confirmation that all detail and flashing conditions will be installed in strict accordance with the OWNER'S Standards as indicated within this specification and otherwise stated within the Contract Documents. Acceptance of any other, non-specified manufacturer's material(s) will not be deemed as acceptance for use of said manufacturer's minimum detail and/or installation requirements.
3. Letter from the proposed Roofing Manufacturer stating that the Manufacturer has a minimum of 20 years consistent experience in directly producing the proposed roof system. The letter shall also state that the proposed Manufacturer's membrane has maintained a consistent formulation for a minimum of 20 years.
4. Letter from the Cool Roof Rating Council (CRR) stating that the proposed PVC membrane demonstrates the required Solar Reflectance Index requirements as stated in Section 1.4 D above. Submit listing as an approved product by the CRR.
5. Letter from proposed Roofing Manufacturer describing the specified certified polymer thickness program. Included shall be a sample copy of the proposed Manufacturer's certificate for polymer thickness as specified.
6. Letter from the proposed Roofing Manufacturer confirming that it has been engaged in a post-consumer recycling program in compliance with the requirements as started in Section 1.2 F above. The proposed Roofing Manufacturer shall provide written proof that its post-consumer recycling program has achieved *UL Environmental* certification.
7. Complete list of material physical and mechanical properties for each membrane and component including; weights and thicknesses; ultimate elongation; puncture resistance; seam peel strength; breaking strength; tear strength; dimensional stability; low temperature bend; and post-consumer recycle content.

- 8 Sample copy of specified warranties.
 - a. Manufacturer's 20-Year System Warranty (with no ponding/standing water exclusions).
 - b. Contractor's Two (2) Year Warranty
9. Letter from the proposed Roofing Manufacturer confirming that the Contractor is an authorized applicator of the proposed roof system per the requirements of Section 1.2 C listed above.

1.6 PRODUCT DELIVERY, STORAGE, and HANDLING:

All products delivered to the job-site shall be in the original unopened containers or wrappings bearing all seals and approvals. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

1.7 JOB CONDITIONS

- A. PVC materials may be installed under certain adverse weather conditions but only after consultation with the Roofing Manufacturer, as installation time and system integrity may be affected.
- B. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work.
- C. The Applicator shall conduct adhesion tests in accordance with the latest revision of the SPRI/ANSI pull test requirements to verify condition of deck and to confirm expected pull test values. Pull tests shall be performed a minimum of one (1) week prior to job start.
- D. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A substantial protection layer consisting of 1/2" plywood over polyester felt or 1/2" plywood over insulation board shall be provided for all new and existing roof areas which receive rooftop traffic during construction.
- E. The Applicator shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages to the Owner's Representative for corrective action prior to beginning roof system installation.

1.8 BIDDING REQUIREMENTS

A. Bidders Responsibility

Bidders must have held their Roofing Contractors License (C39) for a minimum of five (5) years, with a continuous "Good-Standing" status to qualify to bid on this project. Any discrepancy between measurements and conditions listed within this specification, roof plans, and details, and those actually incurred on the job will be the responsibility of the Applicator.

1.9 WARRANTIES

A. Roofing Manufacturer's 20-Year Full System Warranty: 60 MPH Windspeed Coverage

Upon successful completion of all the work to the Roofing Manufacturer's and Owner's Representative's satisfaction, the 20 Year Full System Warranty shall be issued. The System warranty shall provide Non-Penal Sum (replacement cost) coverage for the roof membrane, all associated accessories that comprise the roof system, and all contractor labor for 20 years. The warranty shall be non-prorated, and shall not exclude ponding/standing water and no time limit shall be assigned for any such ponding/standing water during the warranty term. The warranty shall not exclude regular foot traffic on the roof membrane surface. Warranty shall not obligate the Owner to perform manufacturer defined maintenance work as a condition of continued warranty coverage.

B. Roofing Applicator/Contractor Two (2) Year Warranty

The Applicator/Contractor shall supply the Owner with a separate two year workmanship warranty. In the event any work related to roofing, flashing, or metal is found to be within the Applicator/Contractor warranty term, defective or otherwise not in accordance with the Contract Documents, the Applicator/Contractor shall repair that defect at no cost to the Owner.

C. "Early Bird" warranties are not to be issued as they will not be accepted by the Owner. The above specified Warranty will be issued only upon acceptance by the Roofing Manufacturer's Technical Department and the Owner's Representative's final approval.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The components of the adhered PVC feltback membrane roof system are to be products of Sika Sarnafil and/or products utilized by Sika Sarnafil to designate type, quality, and performance standards for this project.
- B. Equal as approved by Architect prior to bidding. Substitutions: Upon pre-approval prior to bidding in accordance with Section 1.5 B above.

2.2 MANUFACTURER AND MEMBRANE

- A. Sika Sarnafil: G410 60-mil Guaranteed Thickness PVC (Western Region Contact: (909) 942-0079)
- B. G410-60: Fiberglass reinforced membrane with an integral lacquer coating to repel dirt and sustain long-term solar reflectivity.
- C. Membrane shall be manufactured by Extrusion/Spread Coating process only, producing a monolithic membrane with fully encapsulated fiberglass reinforcement layer and a minimum of 27- mils of "weathering" polymer above the fiberglass reinforcement layer.

- D. Membrane shall conform to ASTM D4434 (latest revision), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II Grade I (fiberglass reinforcement).
- E. Roofing Manufacturer shall certify in writing that the product supplied for this project has a minimum polymer thickness of 60 mils. ASTM +/- tolerance for membrane thickness is not accepted.
- F. Membrane shall comply with California Building Code (CBC) Title 24, Section 118 requirements for solar reflectivity and emissivity. Manufacturer and membrane shall be listed in the Cool Roof Rating Council (CRRC) product listing as outlined by the Department of Energy (DOE) and the Environmental Protection Agency (EPA).
- G. As manufactured, membrane shall conform to the following physical properties:
1. Color to be "EnergySmart" White.
 2. Thickness to be 60-mil (1.50 mm).

Property	ASTM Test Method	Minimum Physical Properties Requirements
Overall Thickness, mil	D751	60
Thickness Over Scrim, mil	--	27
Reinforcing Material	--	Fiberglass
Felt Weight, oz/yd ² (feltback membrane only)	--	9
Breaking Strength, lbf/in (N)	D751	80 (356)
Elongation at Break, %	D751	250 & 220
M.D.(1) & C.M.D. (1)		
Seam Strength, % of original (2)	D751	Pass
Retention of Properties After Heat Aging	D3045	--
Breaking Strength, % of original	D751	Pass
Elongation, % of original	D751	Pass
Tearing Resistance, lbf (N)	D1004	17.5 (78)
Low Temperature Bend, -40F(-40C)	D2136	Pass
Accelerated Weather Test (Florescent Light UV Exposure),Hours	G154	10,000
Cracking (7x magnification)		None
Discoloration (by observation)		Negligible
Crazing (7x magnification)		None
Linear Dimensional Change, %	D1204	-0.02
Weight Change After Immersion in Water, %	D570	1.9
Static Puncture Resistance, lbf (kg)	D5602	Pass
Dynamic Puncture Resistance, ft-lbf (J)	D5635	Pass
Recycle Content	9% Pre-consume, 1% Post-consumer	

*Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions, and curing conditions.

(1) M.D. = Machine Direction, C.M.D. = Cross Machine Direction

(2) Failure occurs through membrane rupture not seam failure.

2.3 FLASHING MATERIALS

A. Wall/Curb Flashing

1. G410 Membrane: Fiberglass reinforced membrane adhered to approved substrate using Stabond adhesive. Consult Sarnafil Product Data Sheets for additional information.
2. S327 Membrane: Polyester reinforced membrane for mechanically-attached flashings to approved substrate using Sarnastop.
3. Sarnaclad: PVC-coated, heat-weldable sheet metal. Sarnaclad is a 24 gauge, G90 galvanized metal sheet with a 20 mil (1 mm) unsupported PVC membrane laminated on one side. Consult Sarnafil Product Data Sheet for additional information.

B. Perimeter Flashing:

1. PVC Clad Metal Drip Edge: PVC coated, heat-weldable sheet metal with continuous 22-gauge galvanized metal cleat. Sarnaclad is a 24 gauge, G90 galvanized metal sheet with a 20 mil (1 mm) unsupported PVC membrane laminated on one side.
2. Chair Flashing: 24 gauge "Kynar" coated galvanized sheet metal. Color to be selected by the owner from standard "Kynar" color chart.

C. Miscellaneous Flashing;

1. Aluminum Membrane Attachment Bar (Sarnastop)
2. Termination Reglet (Sarnareglet)
3. Universal Corners (Sarnacorners)
4. Flashing Membrane Adhesive (Stabond)

2.4 COVER BOARD / ROOF INSULATION

- A. Georgia-Pacific DensDeck® Prime with EONIC Technology Cover Board or pre-approved equal: Impact and mold resistant, gypsum core fire barrier board with pre-coated glass-mat facers. Manufactured to meet the following requirements:

1. ASTM C 1177 (Consensus Standard).
2. Board Size: 1/4" x 4' x 8' or 1/2" x 4' x 8' as indicated or specified.
3. Weight (nominal): 1/4" = 1.2 Lbs./Ft².
4. Surfacing: Primed Fiberglass Mat.
5. Flexural Strength, Parallel (ASTM C473): 100 lbf, minimum.
6. Flute Span (ASTM E661): 1/4" = 2-5/8 inches.
7. Permeance (ASTM E96): Greater than 17 perms.
8. R-Value (ASTM C518): 1/4" = 0.28.
9. Water Absorption (ASTM C473): Less than 5 percent of weight.
10. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
11. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.

12. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
13. Combustibility (ASTM E136): Noncombustible
14. Fire resistance rating (UL 790 and ASTM E108): Class A
15. Mold Resistance (ASTM D3273): Maximum Rating 10 of 10
16. Bending Radius: $1/4" = 4'$.

B. Tapered Roof Insulation: $1/2"$ min. x $4' \times 4'$ sloped rigid roof insulation panels composed of polyisocyanurate closed-cell foam core with coated glass facer laminated to both sides. Manufactured to meet the following requirements:

1. ASTM C1289-11, Type II, Class 2, Grade 2 (20 psi)
2. Zero Ozone Depletion Potential (ODP) from blowing agent (HCFC-free).
3. Long-Term Thermal Resistance (LTTR) R-Value based on ASTM 1303-11 and/or CAN/ULC-S770-09: Regardless of published values.
4. Facer Type: Premium performance coated glass facer.
5. Board Size: $1/2"$ min. x $4' \times 4'$.
6. Tapered Insulation Slope: $1/4"$ per foot or as indicated otherwise.

2.5 WOOD NAILER

- A. Thickness of nailers must match the insulation thickness to achieve a smooth transition. Wood nailers shall be treated for fire and rot resistance and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. All wood shall have a maximum moisture content of 19% by weight on a dry-weight basis.

2.6 ATTACHMENT COMPONENTS

- A. Membrane Adhesive: V.O.C. Compliant Water Based Adhesive (Sarnacol 2121 Adhesive): Water-based adhesive used to attach the membrane to the horizontal or near-horizontal substrate. Consult Product Data Sheets for additional information.
- B. Cover Board / Insulation Adhesive (Sarnacol 2163 Adhesive/AD Board Adhesive): A low odor, VOC compliant, one step, low-rise urethane foam used to attach insulation to approved compatible substrates. Adhesive is applied with a gravity fed applicator or by hand with a dual component caulk gun. Consult Product Data Sheets for additional information.
- C. Flashing Membrane Adhesive (Stabond Adhesive): Solvent-based reactivating-type adhesive used to attach the membrane to the flashing substrate. Consult Product Data Sheets for additional information.
- D. Sarnafastener-XP: Corrosion-resistant #15 fastener used with membrane attachment bar to attach membrane at vertical transitions of curbed penetrations.
- D. Membrane Attachment Bar (Sarnastop): One (1) inch wide, pre-punched aluminum membrane attachment bar. Used to attach PVC membrane at all perimeter and base-angle transitions. Consult Sarnafil Product Data Sheet for additional information.

2.7 WALKWAY PROTECTION

- A. Equipment Access/Walkway Tread (Sarnatred V2): 96 mil thick, weldable membrane with surface embossment. Used as a protection layer from rooftop traffic. Walkway is supplied in rolls of 30.0 inches wide and 50.0 feet long. Consult Sarnafil Product Data Sheet for additional information.

2.8 MISCELLANEOUS ACCESSORIES

- A. Sealing Tape: Compressible foam with pressure-sensitive adhesive on one side. Used with metal flashings as a preventive measure against air and wind blown moisture entry.
- B. Sarnasolv: Solvent cleaner used for the general cleaning of scuff marks, etc., from the Membrane surface.

2.9 SEALANTS

- A. Depending on substrates, the following sealants are options for temporary overnight tie-ins:
 - 1. Multiple layers of roofing cement and felt.
 - 2. Mechanical attachment with rigid bars and compressed sealant.

2.10 MISCELLANEOUS FASTENERS AND ANCHORS:

- A. All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION:

Report to Owner in writing all conditions that interfere with or prevent correct installation of work of this Section.

3.2 PRE-INSTALLATION MEETING

- A. Refer to Section 1.3 of this specification for meeting agenda requirements.

Discuss the following additional project aspects:

1. Safety
2. Set up
3. Construction schedule
4. Contract conditions
5. Coordination of the work
6. Structural Loading Limitations/Requirements
7. Review of Deck and/or Substrate Conditions

3.3 SUBSTRATE CONDITION

- A. Applicator shall be responsible for acceptance or provision of proper substrate to receive new roofing materials.
- B. Applicator shall verify that the work done under related sections meets the following conditions:
 - 1. Roof drains function properly.
 - 2. Roof curbs, vents and other roof penetrations are properly secured and prepared to receive new roofing materials.
 - 3. All surfaces are smooth and free of dirt, debris and incompatible materials.
 - 4. All roof surfaces shall be free of water.

3.4 SUBSTRATE PREPARATION

The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Applicator shall load materials on the rooftop in such a manner to eliminate risk of deck overload due to concentrated weight. The Owner's Representative shall ensure that the roof deck is secured to the structural framing according to local building code and in such a manner as to resist all anticipated wind loads in that location.

3.5 SUBSTRATE INSPECTION

- A. A dry, clean and smooth substrate shall be prepared to receive the new PVC membrane roof system.
- B. The Applicator shall inspect the substrate for defects such as excessive surface roughness, contamination, structural inadequacy, or any other condition that will adversely affect the quality of work.
- C. The substrate shall be clean, smooth, dry, free of flaws, sharp edges, loose and foreign material, oil and grease. Roofing shall not start until all defects have been corrected.
- D. All roof surfaces shall be free of water.
- E. PVC membrane shall be applied over compatible and accepted substrates only.

3.6 WOOD NAILER

- A. Nailers shall be anchored to resist a minimum force of 300 pounds per lineal foot in any direction. Individual nailer lengths shall not be less than 3 feet long. Nailer fastener spacing shall be at 12 inches on-center. Fasteners shall be staggered 1/3 the nailer width and installed within 6 inches of each end. Two fasteners shall be installed at ends of nailer lengths. Nailer attachment shall meet this requirement and that of the current Factory Mutual Loss Prevention Data Sheet 1-49.

3.7 INSULATION/COVER BOARD INSTALLATION

- A. Tapered Roof Insulation and Cover Board shall be adhered to the concrete roof deck with manufacturer approved low-rise urethane foam board adhesive at a rate according to Factory Mutual Class 1-90 and the Roofing Manufacturer's requirements for attachment rates and patterns.

3.8 INSTALLATION OF PVC ROOF MEMBRANE:

A. General

1. Roof membrane is to be adhered according to the Roofing Manufacturer and Factory Mutual's requirements.
2. Membrane overlaps shall be shingled with the flow of water where possible.
3. Lay membrane rolls perpendicular to the direction of the roof slope.
4. Tack welding of membrane full or half-width rolls for purposes of temporary restraint during installation on windy days is not permitted. Consult Roofing Manufacturer's Technical Department for further information.
5. Hot-air weld overlaps according to roofing manufacturer's Take test cuts at least 3 times per day.
6. Membrane flashings shall extend 2-1/2 inches past the membrane attachment bar and shall be hot-air welded to the field membrane as required.

3.9 HOT-AIR WELDING OF SEAM OVERLAPS :

- A. All field seams shall be hot-air welded using robotic welding equipment only (no hand-held welders). Seam overlaps should be 3 inches wide except for certain details.

3.10 MEMBRANE FLASHINGS:

- A. All flashings shall be installed concurrently with the roof membrane as the job progresses.
- B. Stabond Adhesive for Membrane Flashings: Stabond adhesive shall be applied according to instruction found on the Product Data Sheets. The bonded sheet shall be pressed firmly in place with a hand roller.
- C. All flashings shall extend a minimum of eight (8) inches above roofing level unless otherwise accepted in writing. No bitumen shall be in contact with the PVC membrane. All flashing membranes shall be mechanically fastened along the counter-flashed top edge with Sarnastop or Sarnareglet at six inches (6") on-center.

3.11 METAL FLASHINGS

- A. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:
 1. Factory Mutual Loss Prevention Data Sheet 1-49 (latest issue).

2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) – latest issue.

- B. Metal joints shall be watertight. Metal flashings shall be securely fastened into treated wood nailers. Fasteners shall penetrate the nailer a minimum of one-inch (1"). Counter flashings shall overlap base flashings at least four (4) inches.

3.12 TEMPORARY CUT-OFF

- A. Flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses:
 1. Temporary waterstops shall be constructed to provide a 100% watertight seal.
 2. Stagger of the insulation joints shall be made even by installing partial panels of insulation.
 3. New membrane shall be carried into the waterstop sealant.
 4. Waterstop shall be sealed to the deck and/or substrate so that water will not be allowed to travel under the new or existing roofing.
 5. When work resumes, the contaminated membrane shall be cut out.
 6. Sealant, contaminated membrane, insulation fillers, etc. shall be removed from work area and properly disposed of offsite. These materials shall not be used in new work.
- B. If inclement weather occurs while temporary waterstop is in place, Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.
- C. If water is allowed to enter under the newly-completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

3.13 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner's Representative.
- B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.14 PROTECTION AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, provide written report, with copies to the Owner's Representative.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Contract Completion and according to warranty requirements.

END OF SECTION

SECTION 07 56 00

FLUID-APPLIED WATERPROOFING (INTEGRAL GUTTERS)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Provide a cold-fluid-applied polyurethane roofing/waterproofing system on structural concrete, plywood sheathing, cover board, metal or other substrates.
 - 1. Work includes substrate preparation.
 - 2. Work includes bridging and sealing air leakage and water intrusion pathways and gaps including connections of the walls, scuppers, drains and similar items.

1.3 PERFORMANCE REQUIREMENTS

- A. Cold fluid applied polyurethane roofing/waterproofing system is intended to perform as a continuous barrier against liquid water and to flash or discharge to the exterior incidental water. Membrane system is expected to remain exposed and shall accommodate movements of building materials as required with accessory sealant materials at such locations such as, changes in substrate, perimeter conditions and penetrations.
- B. Installed roofing/waterproofing membrane system shall not permit the passage of water and will withstand the design pressures calculated in accordance with the most current revision of ASCE 7.
- C. Manufacturer shall provide all primary roofing/waterproofing materials that are physically and chemically compatible when installed in accordance with manufacturers current application requirements.

1.4 SUBMITTALS

- A. Submittals: Comply with project requirements for submittals as specified in Division 01.
- B. Product Data: For each product.
- C. Shop Drawings: Manufacturer's standard details and shop drawings for the specified system.
- D. VOC Certification: Manufacturer's certification that all roofing/waterproofing system products meet current Volatile Organic Compound (VOC) regulations as established by the State in which they are being installed; and stating total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, etc.).
- E. Installer's Authorization: Installer shall provide written documentation from the manufacturer of their authorization to install the system, and eligibility to obtain the warranty specified in this section.

- F. Manufacturer' Certification: Certification showing full time quality control of production facilities and that each batch of material is tested to ensure conformance with the manufacturer's published physical properties.
- G. FM Global Compliance: Certification that the roofing/waterproofing membrane meets FM Global Approval Standard 4470 for Class I roof covers, on non-combustible substrates, with a Class 1 documented wind uplift rating meeting the design requirements for the project, a hail rating of SH and an ASTM E-108-00 Class A approval at a slope of 1 in 12.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:
 - 1. Membrane Manufacturer shall have been producing fluid-applied roofing membranes for over 30 years.
 - 2. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor when necessary in the application of the products and site review of the assembly.
- B. Installer's Qualifications: The Contractor shall demonstrate qualifications to perform the Work of this Section by submitting certification or license by the roofing/waterproofing membrane manufacturer as a trained and authorized applicator of the product the installer intends to use.
- C. Source Limitations: All components listed in this section shall be provided by a single manufacturer or approved by the primary roofing/waterproofing manufacturer.
- D. Materials Compatibility: All materials included in the roofing/waterproofing assembly, as well as associated materials adhered to/applied beneath the roofing/waterproofing membrane shall have been tested and verified to be compatible. Include written testing documentation if requested by Architect.
- E. Final Inspection: Manufacturer's representative shall provide to the Architect a comprehensive site visit report after the completion of the roofing/waterproofing system.
- F. Applicable Regulations: Comply with local code and requirements of authorities having jurisdiction. Do not exceed VOC regulations as established by the State in which they are being installed; including total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, and similar items).
- G. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.6 PRE-INSTALLATION CONFERENCE

- A. Prior to scheduled commencement of the roofing installation and associated work, conduct a meeting at the project site with the installer, architect/consultant, owner, manufacturer's representative and any other persons directly involved with the performance of the Work. The Installer shall record conference discussions and to include decisions and agreements reached (or disagreements) and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver all roofing/waterproofing materials to the site in original containers, with factory seals intact.
- B. Store all goods in their original undamaged containers in a clean, dry location within their specified temperature range on the product data sheet.
- C. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
- D. Remove manufacturer supplied plastic covers from materials provided with such. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.

1.8 PROJECT CONDITIONS

- A. Weather: Proceed with roofing/waterproofing only when existing and forecasted weather conditions permit.
- B. All surfaces to receive the roofing/waterproofing membrane shall be free from visible water, dew, frost, snow and ice. Application of roofing/waterproofing membrane shall be conducted in well ventilated areas.
- C. Roofing Membrane:
 - 1. Roofing/waterproofing membrane is not intended to be exposed or in contact with a constant temperature below -22°F (-30°C) or in excess of 176°F (80°C). See technical data sheets for limitations, i.e., hot pipes and vents or direct steam venting.
 - 2. Specified roofing/waterproofing membrane is non-flammable and VOC compliant. Consult container, packaging labels and Safety Data Sheets (SDS) for specific safety information.
 - 3. Specified roofing/waterproofing membrane is resistant to gasoline, paraffin, fuel oil, mineral spirits, and moderate solutions of acids and alkalis, acid rain and detergents. Some low molecular weight alcohols can soften. Any exposure to foreign materials or chemical discharges shall be presented to membrane manufacturer for evaluation to determine any impact on the waterproof membrane assembly performance prior to installation.
- D. Contractor shall ensure adequate protection(s) during installation of the roofing/waterproofing system.
- E. Specified roofing/waterproofing membrane may be used as a temporary roofing/waterproofing barrier when applied at a wet film thickness of 15-20 mils to a properly prepared deck. When the specified roofing/waterproofing membrane is used as a temporary roofing/waterproofing barrier the roofing/waterproofing membrane does not need to be removed prior to installation of the finished roofing/waterproofing system

1.9 WARRANTY

- A. Warranty: System warranty shall be for the following duration in accordance with specified system.

Warranty Length: 20 years.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: Sikalastic RoofPro System as manufactured by Sika Corporation, 201 Polito Avenue, Lyndhurst NJ 07071 web: usa.sika.com. Representative: (909) 942-0079.
- B. Equal as approved by Architect prior to bidding. No substitutions without prior written approval by the Architect.

2.2 ROOFING SYSTEM

- A. Fluid-Applied Membrane System, 20 Year Warranty: Sikalastic® RoofPro 20, Sika Reemat Premium:
 - 1. Base Layer: Sikalastic® 641 Lo-VOC, 50 mils wet film thickness, 32 sf/gal coverage rate approx.
 - 2. Top Layer: Sikalastic® 641 Lo-VOC, 30 mils wet film thickness; 53 sf/gal coverage rate approx.

2.3 MEMBRANES AND COATINGS

- A. Base embedment coat with Reemat reinforcement shall be Sikalastic® 641 Lo-VOC by Sika Corp, a single component, cold, fluid applied, moisture triggered, aliphatic, polyurethane base coat membrane.
- B. Top coat shall be Sikalastic® 641 Lo-VOC by Sika Corp, a single component, cold, fluid applied, moisture triggered, aliphatic, polyurethane top coat membrane.
- C. Base coat and top coat membranes shall be low in VOC's and be a one component elastomeric polyurethane membrane that may be brush or roller applied. Membrane shall have the following physical properties
- D. Liquid Property Requirements:
 - a. Liquid Applied, Single-component, Moisture-Triggered, Aliphatic Polyurethane. Sikalastic®-641 Lo-VOC: VOC Content, ASTM D-2369-81: < 50 g/l
 - b. Volume Solids, ASTM D2697: 89% minimum.
 - c. Weight Solids: ASTM D1644: 92% minimum.
 - d. Sag Resistance, ASTM D4400: No sag at 700 micrometers (0.028 in. / 28 mil)
- E. Film Physical Property Requirements:
 - 1. Tensile Strength (Tension): ASTM D412: Minimum 1.86 MPa (270lb/in²)
 - 2. Elongation: ASTM D412: MIN 200%.
 - 3. Accelerated Weathering FL/UV – 5000 Hours, ASTM G 154, No cracking or checking.
 - 4. Water Vapor Transmission, Permeability / Permeance: ASTM E96: Maximum 8.5 gms/m²/ day (0.033 perm-inches).
 - 5. Flexibility – Mandrel Bend, ASTM D522: Pass, no cracking or flaking.
 - 6. Tear Resistance, ASTM D625: Minimum 5.8 kN/m (33 lbf/in)
 - 7. Indentation Hardness, ASTM D2240: 82 Durometer Units (+/- 5 units)
 - 8. Dynamic Puncture Resistance, ASTM D5635: Minimum 15 joules (357 ft.poundals)
 - 9. Static Puncture Resistance, ASTM D5602: Minimum 20.7 kg. (45.5 lbs.)

2.4 MEMBRANE REINFORCEMENT – FIBERGLASS

- A. Reinforcement for the roofing/waterproofing membrane system shall be Sika Reemat by Sika Corp, a conformable, random strand fiberglass mat specifically designed to provide greater impact resistance and greater resistance to excessive thermal and structural movement while maintaining elasticity and membrane film integrity.
- B. Supplemental reinforcement of the waterproofing membrane system specifically designed for local reinforcement of the waterproofing membrane at structural cracks, expansion joints and transitions between dissimilar materials shall be Sika Flexitape Heavy by Sika Corp., a nylon mesh OR Sika Joint Tape SA by Sika Corp., a self-adhering polymeric rubberized tape with woven polyester facer.

2.5 FILLET BEAD AND PENETRATION SEALANT

- A. Sealant for fillet bead applications and membrane penetrations shall be Sikaflex®-11 FC by Sika Corp., a one-part, polyurethane sealant suitable for fillet bead transition compound to be applied prior to the installation of the membrane system at changes in substrate direction, cove beads, cracks in the substrate and penetrations of the roof /waterproofing system.
- B. Exposed finish sealant shall be SikaHyflex-150 LM by Sika Corp., a one-part low modulus hybrid sealant OR Siksil WS-295. A one-part, low-modulus, weather sealing, silicone sealant. suitable for finishing terminations at saw cuts and all UV exposed sealant terminations. SikaHyflex-150 LM is also suitable for fillet bead transition, changes in substrate direction, cracks in the substrate and penetrations of the roof before installation of the RoofPro membrane system.

2.6 PRIMERS

- A. **Concrete, roof cover boards and sealing cementitious and gypsum-based substrates** shall be primed with Sika Concrete Primer Lo-VOC by Sika Corp., a single component, rapid curing, high solids, moisture cured primer designed for OR Sika Concrete Primer by Sika Corp., a two component, rapid curing, high solids, solvent based polyurea primer.
- B. **Green and damp concrete** shall be primed with Sikalastic® GDC primer by Sika Corp., a 2-component, moisture mitigating epoxy primer for Green, Damp and Dry Concrete surfaces as well as plywood.
- C. **Metal** substrates shall be primed with Sikalastic® EP Primer/Sealer by Sika Corp., a two-component, cyclo-aliphatic, amine cured material with a high level of corrosion resistance for metal, modified bitumen surfaces, and chemically treated wood or the faster curing version Sikalastic® EP Primer Rapid by Sika Corp.,
- D. **Overpainting Sikalastic-600 Series** shall be done with Sika Bonding Primer by Sika Corp: fast-drying, two-component, water-based, adducted polyamide epoxy primer also acceptable for roof coverboards
- E. **Wood** substrates shall be primed with Sikalastic® EP Primer/Sealer by Sika Corp., a two-component, cyclo-aliphatic, amine cured material with a high level of corrosion resistance for metal, modified bitumen surfaces, and chemically treated wood
- F. **Existing Sikalastic-600 Series Membrane** (if over 7 days old) shall be primed with Sika Reactivation Primer or Sikalastic Recoat Primer.

2.7 CONCRETE REPAIR AND PATCHING

- A. Cementitious repair mortar to repair bug holes, spalled areas, and other non-structural surface defects, or to slope decks shall be SikaQuick 1000 by Sika Corp., a two component, polymer-modified, Portland cement, fast-setting, trowel-grade mortar.
- B. Epoxy resin or urethane to fill uneven areas and birdbaths shall be Sikadur-22 Lo-Mod or Sikalastic-720.

2.8 COVER BOARD/THERMAL BARRIER

- A. Glass-faced/treated gypsum core, moisture resistant cover board/thermal barrier, min. 1/2" thick, intended for use as a thermal barrier directly to the structural wood or steel deck. Cover board shall be Dens-Deck Prime by Georgia-Pacific Corp.

2.9 POLYISOCYANURATE FOAM INSULATION

- A. Fiber-reinforced faced polyisocyanurate foam insulation, either flat stock or tapered, meeting the requirements of ASTM C1289 Type II, Class 1 Grade 2 (20 psi). Insulation shall be H-Shield by Hunter Panels, Inc., AC Foam III by Atlas Roofing Corp., Sarnatherm or Sika RMAX.

2.10 MECHANICAL FASTENERS

- A. Mechanical fasteners and plates for polyisocyanurate foam insulation and cover board/thermal barrier securement shall meet requirements of Factory Mutual, and be of appropriate type and length for structural deck substrate.
- B. #12 or #14 screw-type fasteners for steel decks shall penetrate through the steel deck a minimum of 1/2".
- C. #12 or #14 screw-type fasteners for wood decks shall achieve a minimum of 1" penetration depth into the wood or shall penetrate through the wood deck a minimum of 1/4".
- D. #14 screw-type or drive spike fasteners for concrete decks shall achieve a minimum of penetration depth into the concrete. Predrilling of the concrete deck is required.
- E. All fasteners shall be installed with 3" diameter galvalume plates.
- F. Fasteners and plates shall be by OMG, Inc.

2.11 URETHANE FOAM ADHESIVE

- A. Low-rise urethane foam adhesive for polyisocyanurate foam insulation and cover board/thermal barrier securement shall meet requirements of Factory Mutual and be compatible with the intended deck substrate.
- B. Adhesive shall be Sarnacol OM Board Adhesive

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify Architect in writing of any discrepancies. Commencement of the Work in an area shall mean Installer's acceptance of the substrate.
- B. Surfaces shall be sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints full flush.

3.2 SURFACE PREPARATION

- A. Verify that the integral gutter is clean and smooth, free of depressions, waves, or projections, and properly sloped to drains, valleys, eaves, scuppers or gutters. Verify that all substrate openings or penetrations through the integral gutter are secured back to solid blocking. Ensure all preparatory Work is complete prior to applying membrane.
- B. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.
- C. All surfaces shall be blown clean using an air compressor to remove any remaining loose debris.
- D. All cracks and voids greater than 1/16th on an inch shall be routed and caulked with a polyurethane sealant. Allow to cure per roof /waterproofing membrane manufacturer's technical data sheets prior to over-coating with the specified roof /waterproofing membrane system.
- E. At all inside corners, gaps or voids at the juncture of the deck and penetrations apply a minimum 3/4 inch fillet bead of polyurethane sealant and allow to cure per roof /waterproofing membrane manufacturer's technical data sheets prior to installing the roof /waterproofing membrane system.
- F. At all moving cracks, moving joints between dissimilar materials, and similar conditions, create a minimum 1 inch wide bond break utilizing bond breaker tape, centered over the crack or joint.
- G. Membrane terminations shall be established prior to project start-up and documented in shop drawings. Terminations shall occur in raked-out mortar joints, saw cut terminations or under installed counter-flashing materials.

3.3 SUBSTRATE PREPARATION

- A. Acceptable substrates include concrete, concrete block, solid wood and plywood sheathing, approved cover boards and metal.
- B. Wood and Plywood Sheathing:
 - 1. Plywood sheathing shall be exterior grade, minimum 4 ply, and not less than 15/32 inch (12 mm) thick.
 - 2. Preservatives or fire retardants used to treat the decking shall be compatible with roofing materials.

3. The deck shall be installed over joists that are spaced 24 inches (61 cm) o.c. or less and that all four sides bear on and are secured to joist and cross blocking. "H" clips are not acceptable.
4. Panels shall be installed with a 1/8 inch to 1/4 inch (3mm – 6mm) gap between panels and shall match vertically at joints to within (1/8 inch (3mm).
5. Decking shall be kept dry and roofed promptly after installation.
6. Special attention is required for application over pressure treated wood: use Sikalastic EP Primer/Sealer as per Product Data Sheet. WOOD MOISTURE CONTENT SHALL NOT EXCEED 18% WOOD MOISTURE EQUIVALENT (WME) as measured by a Tramex moisture meter calibrated for WME.

C. Structural Concrete:

1. Acceptable concrete substrates are limited to poured in place concrete decks.
2. Minimum deck thickness for structural concrete is 4 inches (10.2 cm).
3. Concrete surface to be light broom finish or equivalent.
4. Curing agents shall be checked for compatibility with specified roofing/waterproofing materials. Most curing agents shall be completely removed from the substrate by grinding, scarifying, or other mechanical means.
5. Concrete and masonry surfaces shall be low-pressure (5,000 psi or less) power-washed in accordance with ICRI Guideline No. 03732: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays to remove all dirt, debris or surface contamination that would compromise bonding of the specified roofing/waterproofing membrane system. Remove oil or grease with solvents, or detergent and water. Rinse surface clean of remaining cleaning agents.
6. Do not apply on substrates with moisture content greater than 4% by weight, measured by Tramex Concrete Moisture Encounter meter.
7. Application to Damp (moisture content greater than 4%) Concrete: Sikalastic® GDC Primer can be applied to damp concrete as soon as surface water has dissipated after rainfall or other sources of water have ceased.
8. Application to Green Concrete: Sikalastic® GDC Primer can be applied to horizontal concrete surfaces 48 hours after concrete pour (or when concrete is walkable) and vertical surfaces 24 hours after forms are removed.
9. Minimum substrate compressive strength > 3000 psi. at the time Sikalastic® GDC Primer is applied.

D. Metal Surfaces:

1. Exposed drain bowls, pipes, and other metal surfaces shall be cleaned by power tool cleaning (SSPC Standards) to remove corrosion deposits back to a clean, bright metal followed by a solvent wipe prior to application of the specified primer.

E. Existing Membrane:

1. Acceptable existing waterproofing membrane must be sound, well adhered and free of any trapped moisture. Verification that the membrane is free of trapped moisture must be established with a moisture scan and a copy of the moisture scan must be provided to the manufacturer.
2. Ensure that there is no trapped moisture via an infrared scan.
3. Pressure wash the roof to remove all dust, dirt and debris from the surface.
4. Validate primer adhesion to Single-ply membranes to determine the level of surface preparation required.

3.4 INSULATION INSTALLATION (IF NECESSARY)

- A. Install insulation to the substrate surface in accordance with the technical data sheet. For multiple board applications, stagger all board joints 12" on center from underlying insulation joints.
- B. Insulation shall be adhered or mechanically attached to the substrate as specified. Follow all specification requirements for adhesive or fastener spacing and density.
- C. Butt insulation boards together to achieve a maximum 1/4" gap between boards. Fit insulation boards tightly at all penetration and perimeter flashing locations to achieve a maximum 1/2" gap.
- D. Discard any damaged insulation boards.
- E. A cover board is required over fiber-reinforced faced Class 1 polyisocyanurate foam insulation.

3.5 COVER BOARD INSTALLATION (IF NECESSARY)

- A. Install cover board over the insulation substrate surface in accordance with the technical data sheet. Stagger all board joints 12" on center from underlying insulation joints.
- B. Cover board shall be adhered to the underlying insulation or mechanically attached through the insulation to the substrate as specified. Follow all specification requirements for adhesive or fastener spacing and density.
- C. Butt cover boards together to allow for a minimum 1/8" – maximum 1/4" gap between boards. Fit cover boards at all penetration and perimeter flashing locations to achieve a maximum 1/2" gap.
- D. Discard any damaged cover boards.
- E. Seal all exposed joints between cover boards with specified urethane sealant.

3.6 PRIMING

Note: Allow all primers to cure and dry in accordance with manufacturer's product data sheets.

- A. Concrete, Masonry, Cover Boards, Plywood and solid wood:
 - 1. Mix and apply specified primer for concrete/masonry/wood surfaces by brush or roller at the application rate shown on the technical data sheet. Porous, rough or absorbent surfaces will decrease coverage rates.
- B. Metal
 - 1. Apply specified primer for metal drain bowls and other metal surfaces by brush or roller at the application rate shown on the technical data sheet. **High roughness of the substrate will decrease coverage rates.**

C. Modified Bitumen:

1. Apply specified primer to clean and prepared modified bitumen surfaces by brush or roller at the application rate shown on the technical data sheet. **High porosity and roughness of the substrate will decrease coverage rates.**

3.7 MEMBRANE REINFORCEMENT

A. Reinforcement of Cracks, Plywood and Cover Board Joints, and Base/Curb Flashing Transitions:

1. For all locations where the specified membrane system is to be applied directly to the substrate surface, provide reinforcement of cracks and joints prior to applying the specified membrane system
2. For all moving cracks and joints, create a minimum 1 inch wide bond break centered over the crack or joint by applying bond break tape centered over each crack or joint.
3. For all non-moving cracks and joints, rout and seal with Sikaflex polyurethane sealant.
4. For all horizontal-to-vertical transitions, provide a $\frac{3}{4}$ " x $\frac{3}{4}$ " Sikaflex polyurethane sealant cant.
5. Apply a minimum of a 3 inch wide strip of Sika Joint Tape SA directly or alternatively Flexitape Heavy membrane reinforcement of into a bed of liquid roofing/waterproofing membrane. Back roll reinforcement to fully embed reinforcement into the wet liquid polyurethane membrane. Add more liquid membrane as needed to fully embed the reinforcement.
6. Ensure reinforcement is not in tension during embedment.

3.8 COLD FLUID APPLIED FIELD MEMBRANE APPLICATION

- A. Install roofing/waterproofing membrane system in accordance with current technical data sheets and in accordance with Part 2 Section 2.2.
- B. Apply base embedment coat to horizontal deck and vertical wall surfaces by brush or with 1/2 inch nap roller to achieve a continuous and uniform minimum wet film thicknesses as specified in Part 2 Section 2.2.
- C. Immediately lay specified conformable membrane reinforcement into the wet base embedment coat. Reemat reinforcement is typically precut before application.
- D. Apply pressure to the membrane reinforcement with a roller as appropriate to fully embed and saturate the membrane reinforcement into liquid roofing/waterproofing material. Remove air pockets from under the membrane by rolling them out.
- E. Apply additional liquid material as required to ensure the membrane reinforcement is fully embedded and has conformed to the substrate without tenting, visible pinholes, air pockets, fish mouths or wrinkles.
- F. Overlap sheets of Reemat membrane reinforcement a minimum of 2 inches in all directions.
- G. Extend membrane reinforcement vertically at adjacent wall surfaces in accordance with project details and specifications.
- H. When using fiberglass mat reinforcement, allow the base embedment coat to fully cure dry prior to the placement of top coat or other applications of the specified roofing/waterproofing material.

- I. Apply top coat by nap roller or brush to achieve a continuous and uniform minimum wet film thickness as specified in Part 2 Section 2.2.
- J. Install all flashings in accordance with manufacturer's and/or project specific construction details.

3.9 PARAPET AND WALL FLASHINGS

- A. Clean, prepare and prime flashing substrate surfaces ready to receive membrane flashing applications.
- B. All parapet, wall, and curb flashings shall be provided with a sealant cant with Flexitape reinforcement prior to flashing application.
- C. Terminate roofing/waterproofing membrane system at raked-out mortar joints, termination saw cut joint, or under installed counter-flashing materials.
- D. Install metal counter flashings in accordance with details.

3.10 DRIP EDGES AND OTHER METAL FLANGED FLASHING

- A. Clean, prepare and prime metal flange surfaces ready to receive membrane flashing applications.
- B. Metal flanges are typically encapsulated between two membrane layers, usually by providing membrane flashing as a stripping ply over the metal flange, with the field or flashing membrane extending beneath the metal flange. It is preferred to install the stripping ply under the metal flange and extend the field or flashing membrane over the metal flange.
- C. For insulated roof assemblies, metal flanges shall be mechanically fastened through the first membrane layer to wood nailers. For direct to substrate membrane applications where the roof / waterproofing membrane is applied directly to the structural deck, metal flanges shall be mechanically fastened through the first membrane layer to the structural deck.

3.11 ROOF DRAINS

- A. Clean, prepare and prime surfaces ready to receive membrane applications. Block drain bowl opening to avoid roofing/waterproofing material from entering the drainage system.
- B. Remove strainer baskets and clamping rings from the drain bowl assembly. Temporarily replace the bolts back into assembly to avoid miss-alignment of connections after membrane applications are completed.
- C. Extend the liquid roofing/ waterproofing material and membrane reinforcement directly into the bowl of the prepared drain.
- D. Remove drain blocks and allow the roofing/waterproofing system to fully cure dry prior to re-connecting the drain bowl assembly.

3.12 ROOF PENETRATIONS

- A. Clean, prepare and prime surfaces ready to receive membrane flashing applications. Ensure that penetrations are secured to prevent movement.

- B. Penetration flashings typically consist of two components. A vertical flashing component extends up the penetration and is torn (if Reemat reinforcement) or finger cut (if fleece reinforcement) at the bottom so that it can be extended horizontally onto the deck/substrate. A horizontal flashing component covers all of the tears/finger cuts and extends vertically up the penetration. The intent is to achieve a 2-3 inch overlap of the two flashing components.

3.13 EXPANSION JOINTS

- A. Clean, prepare and prime surfaces ready to receive membrane flashing applications. For insulated roof assemblies, wood nailers shall be installed as insulation stops prior to expansion joint flashing application.
- B. Expansion joints shall be sealed with a compressible filler such as batt insulation to prevent condensation and to provide support for the flashing bellows.
- C. Expansion joint flashings typically consist of four components. An initial reinforced membrane cradle of 6" wide Flexitape Heavy or Fleece is installed first, followed by a compressible foam rod under 25% compression, extending equally above and below the membrane level. A second reinforced membrane layer is installed over the foam rod to create a bellows. A third reinforced membrane layer is installed over the bellows. It is acceptable to use the flashing or roof / waterproofing membrane as the final layer. Refer to Manufactures' standard expansion joint detail.

3.14 APPLICATION OF PENETRATION SEALANT

- A. Seal reglet-based membrane terminations, heads of exposed mechanical fasteners, around penetrations, duct work, electrical and other apparatus extending through the roofing/waterproofing membrane with specified penetration sealant.

3.15 FLOOD TEST (AS REQUIRED)

- A. Upon the completion of the roofing/waterproofing membrane system and associated terminations the contractor shall flood test the system. Provide temporary stops and plugs for the roof drains within the test area. Flood test with a minimum 2 inches of water for no less than 24 hours.
- B. Repair and retest the system for no less than 24 hours, report all deficiencies to the Architect. Remove temporary stops and plugs. No other Work is to proceed without prior direction from the Architect.

3.16 ROOF PROTECTION

- A. Protect roofing/waterproofing Work from other trades until completion.
- B. Stage materials in such a manner that avoids foot traffic over completed roof areas.
- C. Provide temporary walkways and platforms to protect completed Work from traffic and point loading during the application process.
- D. Provide temporary membrane tie-ins and water-stops at the end of each workday and remove prior to commencement of Work the following day.

3.17 CLEAN-UP

- A. Work areas are to be kept clean, clear and free of debris at all times.

- B. Do not allow trash, waste, and/or debris to collect on the roof deck area. Trash, waste, and/or debris shall be removed from the roof on a daily basis.
- C. All tools and unused materials shall be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.
- D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.
- E. Properly clean the finished roof surface after completion, and make sure the drains and gutters are not clogged.
- F. Clean and restore all damaged surfaces to their original condition.

END OF SECTION

SECTION 07 7113

MANUFACTURED COPINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coping system.

1.2 RELATED REQUIREMENTS

- A. Section 075600 – Fluid-applied Waterproofing.

1.3 REFERENCE STANDARDS

- A. Factory Mutual (FM Global) (www.fmglobal.com).
- B. Single Ply Roofing Industry (SPRI) (www.spri.org):
 - 1. ANSI/SPRI/FM 4435/ES-1 – Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.

1.4 PREINSTALLATION MEETINGS

- A. Convene preinstallation meeting 2 weeks before start of installation of coping system.
- B. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, installer, and manufacturer's representative.
- C. Review the Following:
 - 1. Materials.
 - 2. Examination of roof edge areas.
 - 3. Installation.
 - 4. Cleaning.
 - 5. Protection.
 - 6. Coordination with other Work, including roofing installation.

1.5 SUBMITTALS

- A. Comply with Division 01.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, and details, indicating dimensions, materials, components, fasteners, finish, and accessories.
- D. Samples: Submit manufacturer's sample of coping system.
 - 1. Sample Size: Minimum 6 inches long.

- E. Color Samples: Submit manufacturer's color samples of snap-on coping cap, consisting of complete set of metal color chips representing manufacturer's full range of available colors.
 - F. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
 - G. Manufacturer's Project References: Submit manufacturer's list of 10 successfully completed coping system projects of similar size and scope to this Project, including project name and location, name of architect, and type and quantity of coping systems furnished.
 - H. Warranty Documentation: Submit manufacturer's standard warranty.
- 1.6 QUALITY ASSURANCE**
- A. Manufacturer's Qualifications: Manufacturer regularly engaged in the manufacturing of coping systems of similar type to that specified for a minimum of 5 years.
 - B. Installer's Qualifications:
 - 1. Installer regularly engaged in installation of coping systems of similar type to that specified for a minimum of 5 years.
 - 2. Use persons trained for installation of coping systems.
- 1.7 DELIVERY, STORAGE, AND HANDLING**
- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
 - B. Storage and Handling Requirements:
 - 1. Store and handle materials in accordance with manufacturer's instructions.
 - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 - 3. Store materials in clean, dry area indoors.
 - 4. Do not store materials directly on floor or ground.
 - 5. Protect materials and finish during storage, handling, and installation to prevent damage.
- 1.8 WARRANTY**
- A. Wind Warranty Period: Warranted in wind conditions up to 110 mph with a 20-year wind warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Hickman Edge Systems, 4 Commerce Way, Arden, North Carolina 28704. Toll Free 800-892-9173. Phone 828-676-1700. www.Hickmanedgesystems.com. info@Hickmanroofing.com.

- B. Equal as approved by Architect prior to bidding. Substitutions: Pre-approved equal of pre-engineered coping types only. Shop fabricated coping will not be accepted.
- C. Single Source: Furnish materials from single manufacturer.

2.2 COPING SYSTEM

- A. Coping System: "PermaSnap".
 - 1. Description:
 - a. Snap-on coping with intermittent clips for capping parapet walls.
 - b. Watertight.
 - c. Maintenance free.
 - d. Does not require exposed fasteners or joint sealants.
 - 2. Tested: ANSI/SPRI/FM 4435/ES-1 test pressures up to 139 psf vertical and 82 psf horizontal.
 - 3. Approvals:
 - a. UL Classified.
 - 4. Performance Characteristics:
 - a. Snap-on Coping Cap Sections: Capable of expanding and contracting freely, statically engaged onto mechanically secured clips.
 - b. Snap-on Coping Cap Joints: Underlaid with concealed splices capable of draining water.
 - 5. Wall Width: Indicated on the Drawings and field verified.
 - a. Minimum: 6 inches.
 - b. Maximum: 24 inches.
 - 6. Snap-on Coping Cap:
 - a. Material: 24-gauge galvanized steel.
 - b. Formed Lengths: 10'-0".
 - c. Finish: Prefinished Kynar.
 - d. Color: Match existing and approved by Architect.
 - e. Face Dimension: Indicated on the Drawings and field verified.
 - f. Back Dimension: Indicated on the Drawings.
 - 1) Minimum: 3 inches.
 - 2) Maximum: 4 inches.
 - 7. Intermittent Clips:
 - a. Material: 20-gauge galvanized steel.
 - b. Width: 12 inches.
 - c. Fastener Holes: Slotted.
 - 8. Concealed Splices:
 - a. Material: Same as snap-on coping cap.
 - b. Finish and Color: Same as snap-on coping cap.
 - c. Width: 6 inches.
 - d. Integral gutter to channel water back to roof.
 - 9. Fasteners:
 - a. Universal Fasteners: E-coated, corrosion-resistant.
 - b. Suitable for intended substrate.
 - c. Provided by coping system manufacturer.
 - d. No exposed fasteners.

10. Factory-Fabricated Accessories:
 - a. Fabrication: Metal-Lok.
 - b. Material, Finish, and Color: Same as snap-on coping cap..
 - c. End Caps:
 - 1) Left.
 - 2) Right.
 - d. End Terms:
 - 1) Left.
 - 2) Right.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine roof edge areas, including roofing and blocking, to receive coping system.
- B. Verify surfaces to support coping system are clean, dry, flat, level from front to back, secure, and of proper dimensions.
- C. Notify Architect, Owner's representative, and roofing installer of conditions that would adversely affect installation.
- D. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

- A. Install coping system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Fluid-Applied Waterproofing: Specified in Section 075600.
- C. Shim areas of walls not level from front to back.
- D. Fasteners: Install coping system using concealed fasteners in accordance with manufacturer's instructions.
- E. Install concealed splices at all clip locations.
- F. Thermal Movement: Leave 1/4-inch gap between snap-on coping cap sections to allow for thermal expansion and contraction.
- G. Do not use sealant at splices.
- H. Review lengths of straight pieces of snap-on coping cap before cutting to avoid creating relatively short sections adjacent to full-length sections.
- I. Isolate coping system from ACQ treated wood blocking or other galvanically incompatible material with appropriate material.

3.3 **CLEANING**

- A. Clean coping system promptly after installation in accordance with manufacturer's instructions.
- B. Remove clear protective vinyl film.
- C. Do not use harsh cleaning materials or methods that could damage finish.

3.4 **PROTECTION**

- A. Protect installed coping system to ensure that, except for normal weathering, coping system will be without damage or deterioration at time of Substantial Completion.

END OF SECTION

DIVISION 08: OPENINGS

08 7000 HARDWARE

08 7101 COMMON FINISH HARDWARE REQUIREMENTS
08 7109 ACCESSORIES

END OF TABLE OF CONTENTS

SECTION 08 7101**COMMON FINISH HARDWARE REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. General requirements for finish hardware related to architectural metal doors.

1.2 REFERENCES

- A. Association Publications:
 - 1. Builders Hardware Manufacturers Association (BHMA), 355 Lexington Avenue, 15th Floor, New York, NY 10017-6603, Tel: 212-297-2122 Fax: 212-370-9047, www.buildershardware.com.
- B. Reference Standards:
 - 1. International Code Council / American National Standards Institute:
 - a. ICC / ANSI A117.1-2009, 'Accessible and Usable Buildings and Facilities'.
 - 2. Underwriters Laboratories (UL):
 - a. UL 10B, 'Fire Tests of Door Assemblies' (10th Edition).
 - b. UL 10C, 'Positive Pressure Fire Tests of Door Assemblies' (Third Edition).

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's cut sheets.
 - b. Two (2) copies of Manufacturer's installation, adjustment, and maintenance instructions for each piece of hardware. Include one (1) set in 'Operations And Maintenance Manual' and send one (1) set with hardware when delivered.
 - c. Copy of hardware schedule.
 - d. Written copy of keying system explanation.
 - 2. Shop Drawings:
 - a. Submit hardware schedule indicating hardware to be supplied.
- B. Closeout Submittals:
 - 1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Operations and Maintenance Data:
 - 1) Manufacturer's installation, adjustment, and maintenance instructions for each piece of hardware.
 - b. Record Documentation:
 - 1) Manufacturers documentation:
 - a) Manufacturer's literature and/or cut sheets.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Storage And Handling Requirements:
 - 1. Neatly and securely package hardware items by hardware group and identify for individual door with specified group number and set number used on Supplier's hardware schedule.
 - 2. Include fasteners and accessories necessary for installation and operation of finish hardware in same package.

PART 2 - PRODUCTS

2.1 FINISHES

- A. Hardware Finishes:
 - 1. Finishes for brass or bronze hardware items shall be:
 - a. ANSI / BHMA Finish Code 626.
 - 1) Description: Satin Chromium Plated.
 - 2) Base Metal: Brass. Bronze.
 - 2. Finishes for flat goods items may be:
 - a. ANSI / BHMA Finish Code 630.
 - 1) Description: Satin Stainless Steel.
 - 2) Base Metal: Stainless Steel (300 Series).
 - 3. Materials other than steel, brass, or bronze shall be finished to match appearance satin chromium plated, except flat goods which shall be satin stainless steel.

2.2 FASTENERS

- A. Fasteners shall be of suitable types, sizes and quantities to properly secure hardware. Fasteners shall be of same material and finish as hardware unless otherwise specified. Fasteners exposed to weather shall be non-ferrous or corrosion resisting steel.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before ordering materials, examine Contract Documents to be assured that material to be ordered is appropriate for thickness and substrate to which it is to be secured and will function as intended.

END OF SECTION

SECTION 08 7109**ACCESSORIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Products Furnished But Not Installed Under This Section:
 - 1. Acoustical seals.
 - 2. Smoke Gaskets.
 - 3. Thresholds (metal) where required for metal doors.
- B. Related Requirements:
 - 1. Section 08 7101: 'Common Finish Hardware Requirements'

1.2 REFERENCES

- A. Association Publications:
 - 1. American Architectural Manufacturers Association (AAMA):
 - a. AAMA 609 & 609-09, 'Cleaning and Maintenance Guide for Architecturally Finished Aluminum' (combined document).
 - b. AAMA 611-12, 'Voluntary Standards for Anodized Architectural Aluminum'.
 - c. AAMA 701/702-11, 'Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals'.
 - 2. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. AMP 500-06, 'Metal Finishes Manual' for Architectural and Metal Products.
- B. Reference Standards:
 - 1. American National Standards Institute / Builders Hardware Manufacturers Association:
 - a. ANSI / BHMA A156.18-2012, 'Materials and Finishes'.
 - b. ANSI / BHMA A156.21-2014, 'American National Standard for Thresholds'.
 - 2. International Code Council / American National Standards Institute:
 - a. ICC / ANSI A117.1-2009, 'Accessible and Usable Buildings and Facilities'.

PART 2 - PRODUCTS**2.1 MANUFACTURED UNITS**

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. Hager, St Louis, MO www.hagerhinge.com.
 - b. Ives, Wallingford, CT www.iveshardware.com.
 - c. NGP - National Guard Products, Memphis, TN www.ngpinc.com.
 - d. Pemko Manufacturing, Ventura, CA www.pemko.com.
 - e. Equal as approved by Architect before bidding.
- B. Acoustical Seals
 - 1. Color as selected by Architect.
 - 2. Acceptable Products:
 - a. Door Bottom Shoe for Metal Door:
 - 1) 779S-A by Hager.
 - 2) 35EV by NGP.
 - 3) 217AV by Pemko.
 - b. Equal as approved by Architect before bidding.

- C. Smoke Gaskets:
 - 1. Color as selected by Architect.
 - 2. Acceptable Products:
 - a. 726 by Hager.
 - b. 5050 by NGP.
 - c. PK 55 by Pemko.
 - d. Equal as approved by Architect before bidding.
- D. Thresholds:
 - 1. Acceptable Products:
 - a. Design Criteria:
 - 1) Meet handicap accessibility requirements (ADA):
 - b. Interior Doors at Acoustic Seals, Approved Products:
 - 1) Threshold
 - a) 417 DKB by NGP.
 - b) 174 D by Pemko.
 - c. Metal or wood doors
 - 1) 8426 by NGP.
 - 2) 253 x 3 FG by Pemko.
 - d. Equals as approved by Architect before bidding. See Section 01 6200.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install smoke gaskets and acoustical seals in manner to give continuous air-tight fit.
 - 1. Install smoke gaskets as per Manufacturer's installation requirements:
 - a. Hinge Jamb: Install smoke gaskets on jamb face of door frame so door will compress smoke gasket.
 - b. Header and Strike Jamb: Install smoke gaskets on face of stop of door frame so door will compress smoke gasket.
 - 2. Install acoustical seal with seal under door.

END OF SECTION

DIVISION 09: FINISHES

09 2000 PLASTER AND GYPSUM BOARD

09 2900 GYPSUM BOARD

09 6000 FLOORING

09 6513 RESILIENT BASE AND ACCESSORIES

09 9000 PAINTS AND COATINGS

09 9001 COMMON PAINTING AND COATING REQUIREMENTS

09 9123 INTERIOR PAINTED GYPSUM BOARD, PLASTER

END OF TABLE OF CONTENTS

SECTION 09 2900**GYPSUM BOARD****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Furnish and install gypsum board as described in Contract Documents.

1.2 REFERENCES

- A. Definitions:
1. Accessories: Metal or plastic beads, trim, or moulding used to protect or conceal corners, edges, or abutments of the gypsum board construction.
 2. Drywall Primer: Paint material specifically formulated to fill the pores and equalize the suction difference between gypsum board surface paper and the compound used on finished joints, angles, fastener heads, and accessories and over skim coatings.
 3. Skim Coat: Either a thin coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, over the entire surface.
 4. Texturing: Regular or irregular patterns typically produced by applying a mixture of joint compound and water, or proprietary texture materials including latex base texture paint, to a gypsum board surface previously coated with drywall primer.
- B. Reference Standards:
1. ASTM International:
 - a. ASTM C11-10, 'Standard Terminology Relating to Gypsum and Related Building Materials and Systems.'
 - b. ASTM C475/C475M-02(2007), 'Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.'
 - c. ASTM C840-08, 'Standard Specification for Application and Finishing of Gypsum Board.'
 - d. ASTM C1002-07, 'Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.'
 - e. ASTM C1047-10, 'Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.'
 - f. ASTM C1178/C1178M-08, 'Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel.'
 - g. ASTM C1396/C1396M-09a, 'Standard Specification for Gypsum Board.'
 - h. ASTM E84-10, 'Standard Test Method for Surface Burning Characteristics of Building Materials.'
 - i. ASTM E90-09, 'Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.'
 - j. ASTM E119-10a, 'Standard Test Method for Fire Tests of Building Construction and Materials.'
 2. Gypsum Association:
 - a. GA-214-07e, 'Recommended Levels of Gypsum Board Finish.'
 - b. GA-216-07, 'Application and Finishing of Gypsum Panel Products.'
 - c. GA-600-09, 'Fire Reference Design Manual.'

- d. GA-801-07, 'Handling and Storage of Gypsum Panel Products: A Guide for Distributors, Retailers, and Contractors.'
- 3. Underwriters Laboratories, Inc.
 - a. UL 263: 'Test Method for Fire Tests of Building Construction and Materials.'
 - b. UL 723: 'Standard for Safety Test for Surface Burning Characteristics of Building Materials; Tenth Edition September 10 2008.'

1.3 SUBMITTALS

- A. Informational Submittals:
 - 1. Test And Evaluation Reports:
 - a. Fire test results or assembly diagrams and numbers confirming products used will provide required fire ratings with installation configurations used.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. General:
 - 1. Following recommendations of GA-801 Guide for Handling and Storage of Gypsum Panel Products unless local, state or federal laws or agency rules differing from the recommendations shall take precedence.
- B. Delivery And Acceptance Requirements:
 - 1. Deliver materials in original packages, containers, or bundles bearing brand name, applicable standard designation, and Manufacturer's name.
- C. Storage And Handling Requirements:
 - 1. Store material under roof and keep dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack gypsum board flat to prevent sagging.

1.5 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Comply with ASTM C840 or GA-216 requirements, whichever are more stringent:
 - a. Do not install interior products until installation areas are enclosed and conditioned.
 - 1) Temperature shall be 50 deg F and 95 deg F maximum day and night during entire joint operation and until execution of Certificate of Substantial Completion.
 - 2) Provide ventilation to eliminate excessive moisture.
 - 3) Avoid hot air drafts that will cause too rapid drying.
 - b. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturers:
 - 1. Manufacturer Contact List:
 - a. American Gypsum, Dallas, TX www.americangypsum.com.
 - b. CertainTeed Gypsum, Inc; Tampa, FL www.certainteed.com.
 - c. Georgia Pacific, Atlanta, GA www.gp.com.
 - d. National Gypsum, Charlotte, NC www.nationalgypsum.com.
 - e. Pabco Gypsum, Newark, CA www.pabco gypsum.com.
 - f. United States Gypsum Co, Chicago, IL www.usg.com.

B. Materials:**1. Interior Gypsum Board:****a. General:****1) Size:**

- a) Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2) Quality Standard:

- a) Complies with Type X requirements of ASTM C1396/C1396M (Section 5).
- b) Surface paper: Face paper suitable for painting.
- c) Long edges: Tapered edge.
- d) Overall thickness: 5/8 inch unless noted otherwise on the drawings.

2.2 ACCESSORIES**A. Manufacturers:****1. Manufacturer Contact List:**

- a. Kinetics Noise Control, Dublin, OH www.kineticsnoise.com.
- b. Magnum Products, Lenaxa, KS www.levelcoat.com.
- c. National Gypsum, Charlotte, NC www.nationalgypsum.com.
- d. Soundproofing Co, San Marcos, CA www.soundproofing.org.
- e. United States Gypsum Co, Chicago, IL www.usg.com.
- f. Westpac Materials Inc, Orange, CA www.westpacmaterials.com.
- g. Wm. Zinsser & Co, Somerset, NJ www.zinsser.com.

2. Gypsum Board Mounting Accessories:**a. Acceptable Products:****1) Resilient Sound Isolation Clips:**

- a) Sound Transmission: As per ASTM E90 and E413:

- (1) IsoMax by Kinetics Noise Control.
- (2) SSP Clips by Soundproofing Co.
- (3) Equal as approved by Architect before installation. See Section 01 6200.

3. Corner And Edge Trim:

- a. Metal, paper-faced metal, paper-faced plastic, or solid vinyl meeting requirements of ASTM C1047. Surfaces to receive bedding cement treated for maximum bonding.

4. Joint Compound:

- a. Best grade or type recommended by Board Manufacturer and meeting requirements of ASTM C475/C475M.

1) Use Taping Compound for first coat to embed tape and accessories.**2) Use Taping Compound or All-Purpose Compound for subsequent coats except final coat.****3) Use Finishing Compound for final coat and for skim coat.****5. Joint Reinforcing:**

- a. Paper reinforcing tape acceptable to Gypsum Board Manufacturer.

6. Fasteners:

- a. Bugle head screws meeting requirements of ASTM C1002:

1) Gypsum Board:

- a) Type S: For fastening gypsum board to steel framing and ceiling suspension members, of length to penetrate steel framing 3/8 inch minimum.
- b) Type W: For fastening gypsum board to wood members, of length to penetrate wood framing 5/8 inch minimum.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Verification Of Conditions:
 - 1. Examine substrate and verify framing is suitable for installation of gypsum board.
 - 2. Examine gypsum board before installation. Reject panels that are wet, moisture damaged, and mold damaged.
 - 3. Notify Architect of unsuitable conditions in writing.
 - a. Do not install board over unsuitable conditions.
 - 4. Commencement of Work by installer is considered acceptance of substrate.

3.2 INSTALLATION

- A. Interface With Other Work:
 - 1. Coordinate with Division 06 for location of backblocking for edges and ends of gypsum board and for blocking required for installation of equipment and building specialties.
 - 2. Do not install gypsum board until required blocking is in place.
- B. General: Install and finish as recommended in ASTM C840 or GA-216 unless specified otherwise in this Section.
- C. Interior Gypsum Board:
 - 1. General:
 - a. Install so trim and reinforcing tape are fully backed by gypsum board. No hollow spaces between pieces of gypsum board over 1/8 inch wide before taping are acceptable.
 - b. Rout out backside of gypsum board to accommodate items that extend beyond face of framing, but do not penetrate face of gypsum board, such as metal door frame mounting brackets, etc.
 - 2. Single Layer Application:
 - a. Apply ceilings first using minimum of two men.
 - b. Use board of length to give minimum number of joints.
 - c. On walls over 108 inches high and on ceilings, apply board perpendicular to support.
 - d. Stagger end joints. End and edge joints of board applied on ceilings shall occur over framing members or be back blocked with 2x4 blocking. End joints of board horizontally applied on walls shall occur over framing members. Edge joints of board vertically applied on walls shall occur over framing members.
 - e. Butt edges in moderate contact. Do not force in place. Shim to level.
 - f. Leave facings true with joint, finishing flush. Vertical work shall be plumb and ceiling surfaces level.
 - g. Scribe work closely. Keep joints as far from openings as possible. If joints occur near an opening, apply board so vertical joints are centered over openings. No vertical joints shall occur within 8 inches of external corners or openings.
 - h. Install board tight against support with joints even and true. Tighten loose screws.
 - i. Caulk perimeter joints in sound insulated rooms with specified acoustical sealant.
 - 3. Fastening:
 - a. Apply from center of board towards ends and edges.
 - b. Apply screws 3/8 inch minimum from ends and edges, one inch maximum from edges, and 1/2 inch maximum from ends.
 - c. Spacing:
 - 1) Ends: Screws not over 7 inches on center at edges where blocking or framing occurs.
 - 2) Wood Framed Walls And Ceilings: Screws 7 inches on center in panel field.
 - 3) Metal Framed Walls: Screws 12 inches on center in panel field.
 - d. Set screw heads 1/32 inch below plane of board, but do not break face paper. If face is accidentally broken, apply additional screw 2 inches away.

- e. Screws on adjacent ends or edges shall be opposite each other. Drive screws with shank perpendicular to face of board.
- 4. Trim:
 - a. Corner Beads:
 - 1) Attach corner beads to outside corners.
 - a) Attach metal corner bead with staples spaced 4 inches on center maximum and flat taped over edges of corner bead. Also, apply screw through edge of corner bead where wood trim will overlay corner bead.
 - b) Set paper-faced trim in solid bed of taping compound.
 - b. Edge Trim: Apply where gypsum board abuts dissimilar material. Hold channel and 'L' trim back from exterior window and door frames 1/8 inch to allow for caulking.
- 5. Finishing:
 - a. General:
 - 1) Tape and finish joints and corners throughout building as specified below to correspond with final finish material to be applied to gypsum board. When sanding, do not raise nap of gypsum board face paper or paper-faced trim.
 - 2) First Coat:
 - a) Apply tape over center of joint in complete, uniform bed of specified taping compound and wipe with a joint knife leaving a thin coating of joint compound. If metal corner bead is used, apply reinforcing tape over flange of metal corner bead and trim so half of tape width is on flange and half is on gypsum board.
 - b) Completely fill gouges, dents, and fastener dimples.
 - c) Allow to dry and sand lightly if necessary to eliminate high spots or excessive compound.
 - 3) Second Coat:
 - a) Apply coat of specified joint compound over embedded tape extending 3-1/2 inches on both sides of joint center. Use finishing compound only if applied coat is intended as final coat.
 - b) Re-coat gouges, dents, and fastener dimples.
 - c) Allow to dry and sand lightly to eliminate high spots or excessive compound.
 - 4) Third Coat: Apply same as second coat except extend application 6 inches on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
 - 5) Fourth Coat: Apply same as second coat except extend application 9 inches on both sides of joint center. Allow to dry and sand with fine sandpaper or wipe with damp sponge.
 - a. Finishing Levels: Finish panels to levels indicated below and according to ASTM C840, GA-216 or GA-214:
 - 1) Gypsum Board Surfaces to Receive Multi-Color Coating System, and Painted Texturing, and Smooth Gypsum Board Surfaces:
 - a) GA-214-07e Level 4: 'All and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Coat prepared surface with specified primer.'
 - 2) Painted, Untextured Gypsum Board Surfaces, Except in Mechanical, Storage, And Utility Areas:
 - a) GA-214-07e Level 5: 'All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges. Coat prepared surface with specified primer.'

3.3 FIELD QUALITY CONTROL

A. Non-Conforming Work:

1. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - a. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - b. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

3.4 CLEANING

- A. Remove from site debris resulting from work of this Section including taping compound spills.

END OF SECTION

SECTION 09 6513**RESILIENT BASE AND ACCESSORIES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Furnish and install rubber base as described in Contract Documents.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM International:
 - a. ASTM F1861-08, 'Standard Specification for Resilient Wall Base.'

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data:
 - a. Manufacturer's literature or cut sheet on base and adhesive.
 - b. Color selection.

1.4 FIELD CONDITIONS

- A. Ambient Conditions:
 - 1. Store materials at not less than 70 deg F for at least 24 hours before using.
 - 2. Do not apply in temperatures below 70 deg F .

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Approved Manufacturers. See Section 01 6200.
 - a. Activa Rubber Flooring, Carlstadt, NJ www.rubberfloors.com.or Activa PRF,
 - b. American Floor Products Co Inc (AFCO-USA), Gaithersburg, MD www.afco-usa.com.
 - c. Burke Mercer Flooring Products, San Jose, CA www.burkemercer.com.
 - d. Flexco by ESD Flooring Systems, Tuscumbia, AL www.marleyflexco.com.
 - e. Johnsonite Flooring Products Div, Chagrin Falls, OH www.johnsonite.com.
 - f. Roppe Rubber Corporation, Fostoria, OH www.roppe.com.
 - g. Vinyl Plastics Inc VPI, Sheboygan, WI www.vpicorp.com.
- B. Materials
 - 1. General:
 - a. Molded or extruded meeting requirements of ASTM F1861, Type TP:
 - 1) Thermoplastic rubber, free from objectionable odors, blisters, cracks, and other defects affecting appearance or serviceability of rubber, and not containing fabric.
 - 2) Color pigments used shall be highly fade-resistant, insoluble in water, and resistant to light, alkali, and cleaning agents.

2. Base:
 - a. Size: 1/8 inch by 6 inch .
 - b. Use preformed, molded external corners. Butt joint interior corners.
 - c. Style: Coved.
 - d. Color: As selected by Architect from standard colors to match existing.
3. Adhesive: Best for work as recommended by Manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect surfaces for conditions not suitable for installation. Surface to receive specified items shall be sound, clean, free from foreign matter, tightly nailed, and dry. Do not start work until defects are corrected.

3.2 PREPARATION

- A. Remedy cracks and minor irregularities in substrate in accordance with Manufacturer's recommendations.

3.3 INSTALLATION

- A. Install in manner to produce smooth, even finished surfaces tightly jointed and accurately aligned.
- B. Fit specified items tightly. Use fillers where necessary. Fit neatly against projections, piping, electrical service outlets, etc.
- C. Secure specified items with specified adhesive. Cement substantially to vertical surfaces including rubber base to cabinet work base.
- D. Line up top and bottom lines of base throughout.
- E. Roll until firm bond has been established. Leave level, free from buckles, cracks, and projecting edges.
- F. In wall runs longer than 12 inches, install no lengths of base shorter than 12 inches long.

3.4 ADJUSTING

- A. Inspect and make necessary adjustments within one month after mechanical heat or other heat has been supplied continuously in finished areas.

3.5 PROTECTION

- A. Keep traffic away until adhesive has set.

END OF SECTION

SECTION 09 9001**COMMON PAINTING AND COATING REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
1. Common procedures and requirements for field-applied painting and coating.
- B. Related Requirements:
1. Section 07 9213: 'Elastomeric Joint Sealants' for quality of Elastomeric Joint Sealants.

1.2 REFERENCES

- A. Definitions:
1. Damage Caused By Others: Damage caused by individuals other than those under direct control of Painting Applicator (MPI(a), PDCA P1.92).
 2. Gloss Levels:
 - a. Specified paint gloss level shall be defined as sheen rating of applied paint, in accordance with following terms and values, unless specified otherwise for a specific paint system.

Gloss Level '1'	Traditional matte finish - flat	0 to 5 units at 60 degrees to 10 units maximum at 85 degrees.
Gloss Level '2'	High side sheen flat - 'velvet-like' finish	10 units maximum at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '3'	Traditional 'eggshell-like' finish	10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees.
Gloss Level '4'	'Satin-like' finish	20 to 35 units at 60 degrees and 35 units minimum at 85 degrees.
Gloss Level '5'	Traditional semi-gloss	35 to 70 units at 60 degrees.
Gloss Level '6'	Traditional gloss	70 to 85 units at 60 degrees.
Gloss Level '7'	High gloss	More than 85 units at 60 degrees.

3. Properly Painted Surface:
 - a. Surface that is uniform in appearance, color, and sheen and free of foreign material, lumps, skins, runs, sags, holidays, misses, strike-through, and insufficient coverage. Surface free of drips, spatters, spills, and overspray caused by Paint Applicator. Compliance will be determined when viewed without magnification at a distance of 5 feet (1.50 m) minimum under normal lighting conditions and from normal viewing position (MPI(a), PDCA P1.92).
 4. Latent Damage: Damage or conditions beyond control of Painting Applicator caused by conditions not apparent at time of initial painting or coating work.
- B. Reference Standards:
1. The latest edition of the following reference standard shall govern all painting work:
 - a. MPI(a), 'Architectural Painting Specification Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.
 - b. MPI(r), 'Maintenance Repainting Manual' by Master Painters Institute (MPI), as issued by local MPI Accredited Quality Assurance Association having jurisdiction.

1.3 SUBMITTALS

- A. Action Submittals:
1. Product Data:
 - a. Include following information for each painting product, arranged in same order as in Project Manual.
 - 1) Manufacturer's cut sheet for each product indicating ingredients and percentages by weight and by volume, environmental restrictions for application, and film thicknesses and spread rates.
 - 2) Provide one (1) copy of 'MPI Approved Products List' showing compliance for each MPI product specified.
 - a) MPI Information is available from MPI Approved Products List using the following link: <http://www.paintinfo.com/mpi/approved/index.shtml>.
 - 3) Confirmation of colors selected and that each area to be painted or coated has color selected for it.
 2. Samples: Provide two 4 inch by 6 inch (100 mm by 150 mm) minimum draw-down cards for each paint or coating color selected for this Project.
- B. Informational Submittals:
1. Manufacturer Instructions:
 - a. Manufacturer's substrate preparation instructions and application instruction for each painting system used on Project.
 2. Qualification Statement:
 - a. Applicator:
 - 1) Provide Qualification documentation if requested by Architect or Owner.
- C. Closeout Submittals:
1. Include following in Operations And Maintenance Manual specified in Section 01 7800:
 - a. Record Documentation:
 - 1) Manufacturer's documentation:
 - a) Manufacturer's cut sheet for each component of each system.
 - b) Schedule showing rooms and surfaces where each system was used.
- D. Maintenance Materials Submittals:
1. Extra Stock Materials:
 - a. Provide painting materials in Manufacturer's original containers and with original labels in each color used. Label each can with color name, mixture instructions, date, and anticipated shelf life.
 - b. Provide one (1) quart of each finish coat and one (1) pint of each primer and of each undercoat in each color used.

1.4 QUALITY ASSURANCE

- A. Regulatory Agency Sustainability Approval:
1. Conform to work place safety regulations and requirements of those authorities having jurisdiction for storage, mixing, application and disposal of all paint and related hazardous materials.
 2. Paint and painting materials shall be free of lead and mercury, and have VOC levels acceptable to local jurisdiction.
 3. Master Painters Institute (MPI) Standards:
 - a. Products: Comply with MPI standards indicated and listed in 'MPI Approved Products List'.
 - b. Preparation and Workmanship: Comply with requirements in 'MPI Architectural Painting Specification Manual' for products and coatings indicated.
- B. Field Samples:
1. Before application of any paint system, meet on Project site with Architect, Owner's representative, and Manufacturer's representative. Architect may select one (1) surface for

- application of each paint system specified. This process will include establishing acceptable substrate conditions required for Project before application of paints and coatings.
2. Apply paint systems to surfaces indicated by Architect following procedures outlined in Contract Documents and Product Data submission specified above.
 3. After approval of samples, proceed with application of paint system throughout Project. Approved samples will serve as standard of acceptability.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery And Acceptance Requirements:
 1. Deliver specified products in sealed, original containers with Manufacturer's original labels intact on each container.
 2. Deliver amount of materials necessary to meet Project requirements in single shipment.
- B. Storage And Handling Requirements:
 1. Store materials in single place.
 2. Keep storage area clean and rectify any damage to area at completion of work of this Section.
 3. Maintain storage area at 55 deg F (13 deg C) minimum.

1.6 FIELD CONDITIONS

- A. Ambient Conditions:
 1. Perform painting operations at temperature and humidity conditions recommended by Manufacturer for each operation and for each product for both interior and exterior work.
 2. Apply painting systems at lighting level of 540 Lux (50 foot candles) minimum on surfaces to be painted.
 - a. Inspection of painting work shall take place under same lighting conditions as application.
 - b. If painting and coating work is applied under temporary lighting, deficiencies discovered upon installation of permanent lighting will be considered latent damage as defined in MPI Manual, PDCA P1-92.

PART 2 - PRODUCTS

2.1 SYSTEMS

- A. Performance:
 1. Design Criteria:
 - a. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - b. All materials, preparation and workmanship shall conform to requirements of 'Architectural Painting Specification Manual' by Master Painters Institute (MPI).
 - c. All paint manufacturers and products used shall be as listed under Approved Product List section of MPI Painting Manual.
 - d. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.
 - e. Where specified paint system does not have Premium Grade, provide Budget Grade.
 - f. Provide products of same manufacturer for each coat in coating system.
 - g. Where required to meet LEED (Leadership in Energy and Environmental Design) program requirements, use only MPI listed materials having an "L" rating designation.

B. Materials:

1. Materials used for any painting system shall be from single manufacturer unless approved otherwise in writing by painting system manufacturers and by Architect. Include manufacturer approvals in Product Data submittal.
2. Linseed oil, shellac, turpentine, and other painting materials shall be pure, be compatible with other coating materials, bear identifying labels on containers, and be of highest quality of an approved manufacturer listed in MPI manuals. Tinting color shall be best grade of type recommended by Manufacturer of paint or stain used on Project.

PART 3 - EXECUTION**3.1 EXAMINATION****A. Verification Of Conditions:**

1. Directing applicator to begin painting and coating work will indicate that substrates to receive painting and coating materials have been previously inspected as part of work of other Sections and are complete and ready for application of painting and coating systems as specified in those Sections.

B. Pre-Installation Testing:

1. Before beginning work of this Section, examine, and test surfaces to be painted or coated for adhesion of painting and coating systems.
2. Report in writing to Architect of conditions that will adversely affect adhesion of painting and coating work.
3. Do not apply painting and coating systems until party responsible for adverse condition has corrected adverse condition.

C. Evaluation And Assessment:

1. Report defects in substrates that become apparent after application of primer or first finish coat to Architect in writing and do not proceed with further work on defective substrate until such defects are corrected by party responsible for defect.

3.2 PREPARATION**A. Protection Of In-Place Conditions:**

1. Protect other finish work and adjacent materials during painting. Do not splatter, drip, or paint surfaces not intended to be painted. These items will not be spelled out in detail but pay special attention to the following:
 - a. Do not paint finish copper, bronze, chromium plate, nickel, stainless steel, anodized aluminum, or monel metal except as explicitly specified.
 - b. Keep cones of ceiling speakers completely free of paint.
 - c. On existing work where ceiling is to be painted, speakers and grilles are already installed, and ceiling color is not being changed, mask off metal grilles installed on ceiling speakers. If ceiling color is being changed, remove metal grilles and paint, and mask off ceiling speakers.

B. Surface Preparation:

1. Prepare surfaces in accordance with MPI requirements and requirements of Manufacturer for each painting system specified, unless instructed differently in Contract Documents. Bring conflicts to attention of Architect in writing.
2. Fill minor holes and cracks in wood surfaces to receive paint or stain.
3. Surfaces to be painted shall be clean and free of loose dirt. Clean and dust surfaces before painting or finishing.

3.3 APPLICATION

- A. Interface With Other Work:
 - 1. Coordinate with other trades for materials and systems that require painting before installation.
 - 2. Schedule painting and coating work to begin when work upon which painting and coating work is dependent has been completed. Schedule installation of pre-finished and non-painted items, which are to be installed on painted surfaces, after application of final finishes.
- B. Paint or finish complete all surfaces to be painted or coated as described in Contract Documents,
- C. Apply sealant in gaps 3/16 inch (5 mm) and smaller between two substrates that are both to be painted or coated. Sealants in other gaps furnished and installed under Section 07 9213.
- D. Spread materials smoothly and evenly. Apply coats to not less than wet and dry film thicknesses and at spreading rates for specified products as recommended by Manufacturer.
- E. Touch up suction spots after application of first finish coat.
- F. Paint shall be thoroughly dry and surfaces clean before applying succeeding coats.
- G. Make edges of paint adjoining other materials or colors clean, sharp, and without overlapping.
- H. Finished work shall be a 'Properly Painted Surface' as defined in this Section.

3.4 FIELD QUALITY CONTROL

- A. Non-Conforming Work:
 - 1. Correct deficiencies in workmanship as required to leave surfaces in conformance with 'Properly Painted Surface,' as defined in this Section.
 - 2. Correction of 'Latent Damage' and 'Damage Caused By Others,' as defined in this Section, is not included in work of this Section.

3.5 CLEANING

- A. General:
 - 1. As work proceeds and upon completion of work of any painting Section, remove paint spots from floors, walls, glass, or other surfaces and leave work clean, orderly, and in acceptable condition.
- B. Waste Management:
 - 1. Remove rags and waste used in painting operations from building each night. Take every precaution to avoid danger of fire.
 - 2. Paint, stain and wood preservative finishes and related materials (thinners, solvents, caulking, empty paint cans, cleaning rags, etc.) shall be disposed of subject to regulations of applicable authorities having jurisdiction.
 - 3. Remove debris caused by work of paint Sections from premises and properly dispose.
 - 4. Retain cleaning water and filter out and properly dispose of sediments.

END OF SECTION

SECTION 09 9123**INTERIOR PAINTED GYPSUM BOARD, PLASTER****PART 1 - GENERAL****1.1 SUMMARY**

- A. Includes But Not Limited To:
 - 1. Preparing, priming, and finish painting new and existing interior gypsum board and plaster surfaces as described in Contract Documents.

PART 2 - PRODUCTS**2.1 SYSTEM**

- A. Manufacturers:
 - 1. Approved Manufacturers and Products.
 - a. Products listed in edition of MPI Approved Product List current at time of bidding and later are approved, providing they meet VOC requirements in force where Project is located.
- B. Description:
 - 1. Breakroom:
 - a. New Surfaces: Use MPI(a) INT 9.2F Waterborne Epoxy Finish system.
 - b. Previously Finished Surfaces: Use MPI(r) RIN 9.2E Waterborne Epoxy Finish system.
 - 2. All Other:
 - a. New Surfaces: Use MPI(a) INT 9.2B Latex Finish system.
 - b. Previously Finished Work: Use MPI(r) RIN 9.2B Latex Finish system.
- C. Performance:
 - 1. Design Criteria:
 - a. New Surfaces: MPI Premium Grade finish requirements.
 - b. Deteriorated Existing Surfaces: MPI Premium Grade finish requirements.
 - c. Sound Existing Surfaces: MPI Custom Grade requirements.
 - d. Gloss / Sheen Required:
 - 1) Breakroom: Gloss Level 6.
 - 2) Ceiling: Gloss Level 1 or 2 to match existing.
 - 3) Remaining Painted Surfaces: Gloss Level 5.
- D. Materials:
 - 1. Primers:
 - a. MPI Product 50, 'Primer Sealer, Latex, Interior'.
 - 2. Finish Coats:
 - a. Walls:
 - 1) Buildings with only Gypsum Board surfaces in rooms:
 - a) MPI Product 115, 'Epoxy-Modified Latex, Interior, Gloss (MPI Gloss Level 6)'.
 - b. Ceiling:
 - 1) MPI Product 53, 'Latex, Interior, Flat (MPI Gloss Level 1)'.
 - c. Remaining Painted Surfaces:
 - 1) MPI Product 141, 'Latex, Interior, High Performance Architectural, Semi-Gloss (MPI Gloss Level 5)'.

PART 3 - EXECUTION

3.1 APPLICATION

- A. General: See appropriate paragraphs of Section 09 9001.
- B. New Surfaces:
 - 1. Primer: Apply primer to be covered with other paint coats with roller only, or with spray gun and back-rolled.
- C. Existing Painted Surfaces:
 - 1. Remove deteriorated existing paint down to sound substrate by scraping or sanding. Feather edges of existing paint by sanding to be smooth with adjacent surfaces.
 - 2. Clean surface with mild soap and water, or with tri-sodium phosphate (TSP). Wash surfaces that have been defaced with marking pens, crayons, lipstick, etc, with solvent recommended by Paint Manufacturer. Spot prime such surfaces.
 - 3. Spackle and tape cracks. Sand to smooth finish and spot prime.
 - 4. Sand or chemically etch existing painted surface as required to prepare surface to accept new paint.
 - 5. Re-clean surface.
 - 6. Apply primer coat.
 - 7. Apply finish coats.

END OF SECTION